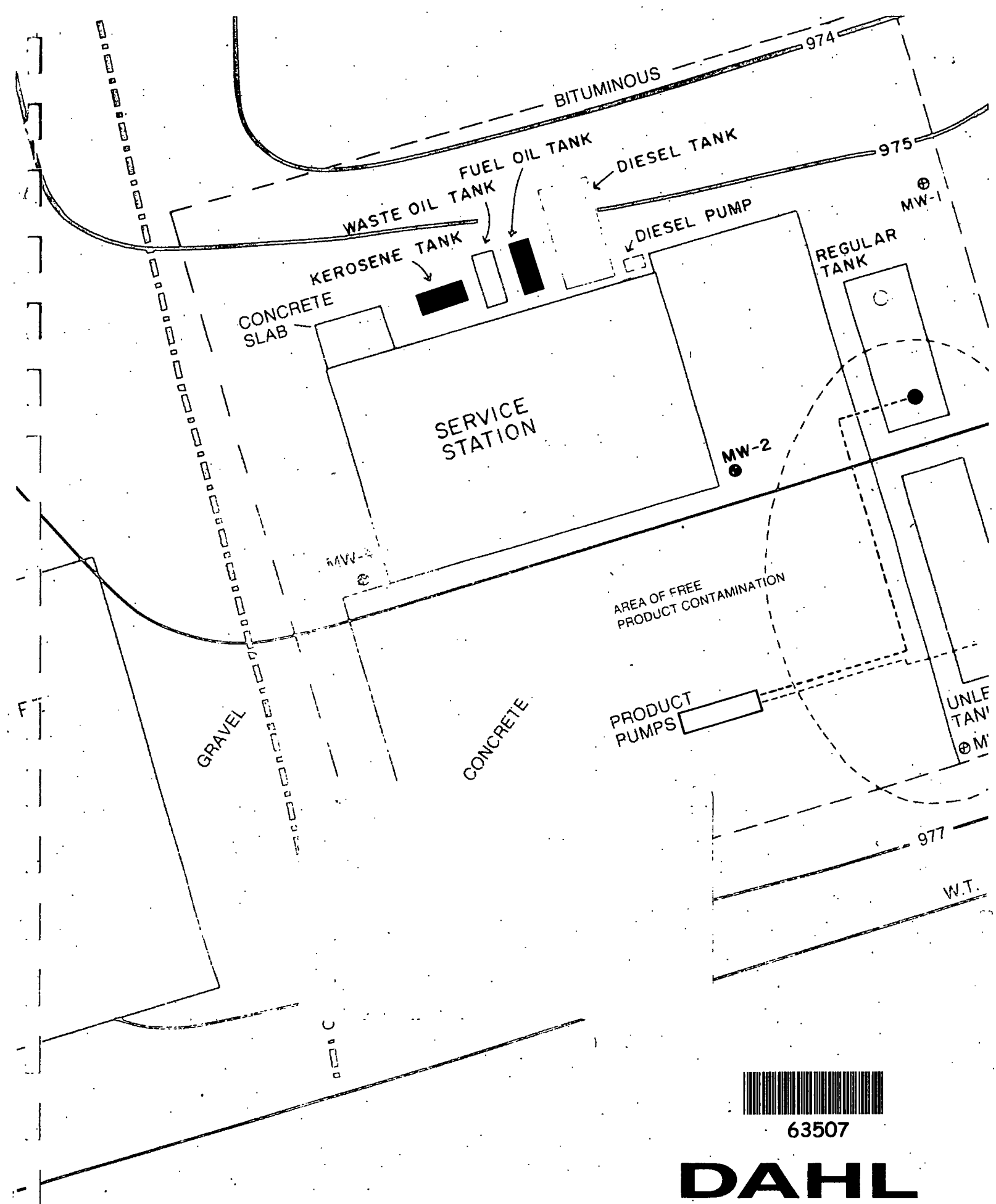

63507

DAHL
& ASSOCIATES, INC.

ENVIRONMENTAL COMPLIANCE MANAGEMENT SYSTEMS

DAHL & ASSOCIATES, INC.
Environmental Compliance Management Systems

2627 HICKORY GROVE ROAD
DAVENPORT, IOWA 52804

SITE CLEANUP REPORT

Pacific Activities Limited
626 Schmidt Road
Davenport, Iowa

DAHL Project No. QEIA-1097
Registration No. 9017105
L.U.S.T No. 8LTB98
October 13, 1993

COPIES SUBMITTED TO:

Mr. Bernard Goldstein, Pacific Activities Limited
Mr. David Baumann, Piper and Marbury
Mr. Verne Schrunk, Iowa Department of Natural Resources
Mr. Neil S. Searcy, General Adjustment Bureau Business Services

PIPER & MARBURY
1200 NINETEENTH STREET, N.W
WASHINGTON, D.C. 20036-2430
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BALTIMORE
NEW YORK
PHILADELPHIA
LONDON
EASTON, MD

DAVID N. BAUMANN
202-861-3855

October 19, 1993

DELIVERED BY TELECOPIER AND FIRST CLASS MAIL

Mr. Vernon Schrunk
Environmental Specialist
Iowa Department of Natural Resources
Wallace Building
Des Moines, Iowa 50319

RE: Pacific Activities Limited Site Characterization Report ("SCR")
Registration No. 901705 L.U.S.T. No. 8LTB98

Dear Mr. Schrunk:

Please find enclosed a copy of the SCR for the Pacific Activities Limited site. As you will note, the SCR focuses on the gasoline contamination associated with the two underground storage tanks removed from the property. While some diesel fuel has been found on the property, our consultants have advised us that this fuel relates either to two former aboveground storage tanks ("ASTs") (which have been removed from the property and appropriately managed) or former scrap processing operations conducted by Alloy Metals (the prior owner and operator of the property).

We are providing documentation to the U.S. Environmental Protection Agency regarding the removal of the ASTs and associated fuels, sludges and contaminated soils as a part of a current RCRA Facility Assessment of the property.

Please call me if you have any questions or comments regarding this report.

Sincerely,

David N. Baumann

Enclosure

IOWA DEPARTMENT OF NATURAL RESOURCES

IMPORTANT: READ ALL INSTRUCTIONS BEFORE COMPLETING

Leaking Underground Storage Tank Site Cleanup Report (SCR)

SITE IDENTIFICATION

LUST No. 9017105 UST Registration Number: 8LTB98

Site Name:	Pacific Activities Limited
Site Address:	626 Schmidt Road
City:	Davenport

RESPONSIBLE PARTY IDENTIFICATION

Name: Pacific Activities Limited		
Street: 2117 State Street		
City: Bettendorf	**State:** Iowa	**Zip Code:** 52722

Submittal Date: October 14, 1993

SITE RISK CLASSIFICATION (mark one): [ ] HIGH RISK [XX] LOW RISK [] NO RISK

STATEMENT OF CERTIFICATION

The below named certify that this document, appendices and attachments satisfy the Site Cleanup Report requirements of Chapter 567-135(455b) of the Iowa Administrative Code and all other applicable state, federal and local requirements.

John M. Gaines #1223

Print the Name of Groundwater Professional

JEFFREY GOLDSTEIN

Print the Name of Responsible Party

Signature-Registered Groundwater Professional

Signature-Responsible Party

Official DNR Use Only

Date Received:		**Comment Date:**	
Reviewer:		**Comment Date:**	
Date Reviewed:		**Approved Date:**	

APPENDICES CHECK-OFF SHEET

Check the box to indicate the appendix is attached. Attach the appendices to the end of the SCR in the order listed.

[ ] **Appendix 1 "II(C) - Tank & Line Tightness Testing Results"**

[X] **Appendix 2 "II(D) - Topographical Site Map"**

[X] **Appendix 3 "II(E) - Scaled Site Plan"**

[X] **Appendix 4 "II(F) - Scaled Site Vicinity Map"**

[X] **Appendix 5 "III(B) - Soil Boring Logs"**

[X] **Appendix 6 "III(H) - Soil Contamination Plume"**

[X] **Appendix 7 "IV(B) - Monitoring Well Construction Diagrams"**

[X] **Appendix 8 "IV(G) - Groundwater Contour Map"**

[X] **Appendix 9 "IV(I) - Groundwater Contamination Plume"**

[X] **Appendix 10 "VI - Hydrogeological Cross-Section Diagram"**

[X] **Appendix 11 "VIII - Receptor Survey"**

1) Surface Water Body Survey
2) Conduit Survey
3) Groundwater Well Survey
4) Groundwater Barriers Survey

[X] **Appendix 12 "X - Laboratory Data Sheets"**

[ ] **Appendix 13 "XII(B) - Off-Site Contamination Support Data"**

[X] **Appendix 14 "XIII - Site Risk Classification Justification"**

[ ] **Appendix 15 "XIV(A3) - Treatment Technology Evaluation"** (High Risk Sites Only)

[ ] **Appendix 16 "XIV(A4) - Best available Technology (BAT)"** (High Risk Sites Only)

[X] **Appendix 17 "XV(B2) - Best management Practice"** (Low Risk Sites Only)

[X] **Appendix 18 "XIV (B3) - Monitoring Plan"** (Low Risk Sites Only)

*** IMPORTANT: READ ALL INSTRUCTIONS BEFORE COMPLETING ***

I. Site History

(CONFINE YOUR ANSWER TO THE SPACE PROVIDED UNLESS OTHERWISE NOTED)

A. Date the petroleum release was discovered: (mm/dd/yy) October 17, 1990

B. Date the petroleum release was reported to DNR: (mm/dd/yy) October 17, 1990

C. Site Owner Chronology

This Page May Be Photocopied for Additional Site History

Provide a chronological summary of past and present site and tank owners and operational history. Begin with the present and work backwards. Include all periods of time petroleum products have been stored, used or sold on site. List the current mailing addresses of all previous owners and tank operators. List written contracts or agreements between land owners, real estate owners and tank operators. In the "SITE ACTIVITY" row, list number, capacity, and contents of past and present tanks, previous releases and tank closures.

DATE	March 15, 1989 to Present	1964 to March 15, 1989	1954 to 1964
LAND OWNER NAME AND ADDRESS	Pacific Activities Limited 2117 State Street Bettendorf, Iowa	Sherman Industries, Inc. and Alloy Metal Products, Inc. 2333 Rockingham Road Davenport, Iowa	A.G.S. Associates 2333 Rockingham Road Davenport, Iowa
REAL ESTATE OWNER NAME AND ADDRESS	Pacific Activities Limited 2117 State Street Bettendorf, Iowa	Sherman Industries, Inc. and Alloy Metal Products, Inc. 2333 Rockingham Road Davenport, Iowa	A.G.S. Associates 2333 Rockingham Road Davenport, Iowa
OPERATOR NAME AND ADDRESS	Pacific Activities Limited 2117 State Street Bettendorf, Iowa	Sherman Industries, Inc. and Alloy Metal Products, Inc. 2333 Rockingham Road Davenport, Iowa	Alter Company 2333 Rockingham Road Davenport, Iowa
CONTRACT AGREEMENTS	None	None	None
SITE ACTIVITIES	Two USTs were removed on October 19, 1990 by Alter Envirionmental Services (AES). The tanks were registered with the IDNR as two-10,000 gallon gasoline tanks. Upon excavation, it was discovered that UST #1 was a 300 gallon gasoline tank and UST #2 was a 560 gallon gasoline tank. Approximately 90 cubic yards of contaminated fill was removed from the excavation, characterized, and disposed of at Scott County landfill. On October 1, 1993, DAHL and Associates, Inc., directed the over-excavation of the former UST #1 basin, in an attempt to remove all gasoline contaminated soil. During the excavation, it was discovered that contaminated soil extended beneath the adjacent building. The excavation was terminated, with the removed contaminated soil taken to the Scott County landfill.	The USTs were installed after 1964.	No known USTs.

Is this page reproduced with additional history? Yes [XX] No [ ]

*** IMPORTANT: READ ALL INSTRUCTIONS BEFORE COMPLETING ***

I. Site History

(CONFINE YOUR ANSWER TO THE SPACE PROVIDED UNLESS OTHERWISE NOTED)

A. Date the petroleum release was discovered: (mm/dd/yy) October 17, 1990

B. Date the petroleum release was reported to DNR: (mm/dd/yy) October 17, 1990

C. Site Owner Chronology

This Page May Be Photocopied for Additional Site History

Provide a chronological summary of past and present site and tank owners and operational history. Begin with the present and work backwards. Include all periods of time petroleum products have been stored, used or sold on site. List the current mailing addresses of all previous owners and tank operators. List written contracts or agreements between land owners, real estate owners and tank operators. In the "SITE ACTIVITY" row, list number, capacity, and contents of past and present tanks, previous releases and tank closures.

DATE	Prior to 1954		
LAND OWNER NAME AND ADDRESS	Davenport Bessler Company 2333 Rockingham Road Davenport, Iowa		
REAL ESTATE OWNER NAME AND ADDRESS	Davenport Bessler Company 2333 Rockingham Road Davenport, Iowa		
OPERATOR NAME AND ADDRESS	Davenport Bessler Company 2333 Rockingham Road Davenport, Iowa		
CONTRACT AGREEMENTS	Unknown		
SITE ACTIVITIES	Diesel locomotive factory. No known USTs.		

Is this page reproduced with additional history? Yes [ ] No [XX]

D. Describe the circumstances of the discovery of the release:

Soil samples were collected during removal of one 560 gallon gasoline tank and one 300 gallon gasoline tank from separate basins on October 19, 1990, by Alter Environmental Services, Inc. Contamination was confirmed after analysis of the soil samples showed levels of Total Organic Hydrocarbons over the IDNR action level of 100 ppm.

E. Describe the initial actions taken to abate the petroleum release:

No further release was possible after removal of the tanks. Approximately 90 yards of contaminated fill and soil that had been excavated from the tank basins was characterized and disposed of at the Scott County Landfill. The release was reported to the IDNR.

II. Current Site Conditions

(CONFINE YOUR ANSWER TO THE SPACE PROVIDED)

A. Provide a general description of the site geology:

The UST site lies 2000 feet north of the Mississippi River. The area is underlain by Devonian age Wapsipinicon Limestone and grey-green shale, lime mud, and sandy stringers of Pennsylvanian age. The bedrock is covered by clay which is covered by sand and cinder backfill. The limestone bedrock surface is very uneven, and may be fractured or karstic.

In testborings advanced on the site, the following stratigraphy was encountered:

0'- 3': a black, slag-like, sandy fill material.
3'- 6': black clay.
6'- 8': grey silty-clay.
8'- 8.5' to 16': green silty-clay to shaley-clay.
8.5'- 16': white limestone and clay.

B. Description of the existing UST system.

This page may be photocopied if more than 6 tanks exist at this site.

Tank Number	1	2	3	4	5	6
Capacity (gallons)	No					
Product Stored	Remaining					
Construction Material	USTs					
Operational Status	CHECK ONE BOX ONLY FOR EACH TANK					
Contains Product	☐	☐	☐	☐	☐	☐
Contains NO product & is out-of-use	☐	☐	☐	☐	☐	☐
C. Tank and line tightness tests required by IDNR? (YES or NO)						
Tank Leak Rate (g/h)						
Line Leak Rate (g/h)						

>> Attach Appendix "II(C) - Tank & Line Tightness Testing Results"

If tanks or lines were tightness tested, attach copies of all results, supporting field data and the third party evaluation of the leak detection system. Explain the cause of testing anomalies and discuss any corrective actions or repairs made to the system.

>> D. Attach Appendix "II(D) - Topographical Site Map"

Provide a topographical map of the site and surrounding area developed from work done at the site, city surveys where available or USGS maps. Legible contour elevation differentials no greater than 10 feet must be provided. Two feet contour intervals are preferred.

>> E. Attach Appendix "II(E) - Scaled Site Plan"

Provide a scaled map (scale 1 inch = 20 to 50 feet) of the site and immediate surrounding area. It must show the following, but not limited to: 1) Location and content of existing and removed USTs, product lines and dispensers. 2) Pertinent site features (i.e. buildings, roads, wells, waterways, sink holes, etc).

>> F. Attach Appendix "II(F) - Scaled Site Vicinity Map"

Provide a scaled (scale 1 inch = 200 to 500 feet) vicinity map showing the site in relation to surrounding general features. It must show the following, but is not limited to:

1) Pertinent general features (i.e. buildings, roads, waterways, sinkhole, etc.)

2) Location of properties adjacent to the site affected or potentially affected by the contamination

List below the names of owners of property affected or potentially affected by the contamination. Ensure the names correspond to the data provided on appendix "II(F) Scaled Site Vicinity Map."

	Property Owner Name	Property Address	Owner Mailing Address
1	Pacific Activities Limited	626 Schmidt Road Davenport, Iowa	Pacific Activities Limited 2117 State Street Bettendorf, Iowa 52722
2	G. I. Properties	See "Scaled Site Vicinity Map"	Alter Trading Corporation 2117 State Street Bettendorf, Iowa 52722-1400
3	Howard Steel Company	2343 Rockingham Road Davenport, Iowa 52802	2343 Rockingham Road Davenport, Iowa 52802
4	Burger King Corporation	2423 Rockingham Road Davenport, Iowa 52802	2423 Rockingham Road Davenport, Iowa 52802
5	Interfoods Incorporated	2525 Rockingham Road Davenport, Iowa 52802	2525 Rockingham Road Davenport, Iowa 52802
6	Priester Construction	2609 Rockingham Road Davenport, Iowa 52802	601 North Brady Street Davenport, Iowa 52803
7	Schmidt Road Company	See "Scaled Site Vicinity" map.	Lot located to SE of LUST site See "Scaled Site Vicinity Map"
8	Joe Celsi	See "Scaled Site Vicinity" map.	Joseph T. Celsi 24 Oakbrook Drive Bettendorf, Iowa 52722
9	Ralston Purina Company	433 Pine Street Davenport, Iowa 52802	433 Pine Street Davenport, Iowa 52802
10	A.D. Huesing Bottling Company	531 Schmidt Road Davenport, Iowa 52802	531 Schmidt Road Davenport, Iowa 52802
11	City of Davenport	See "Scaled Site Vicinity" map	Davenport City Hall 226 W 4th Street Davenport, Iowa 52801

>> E. Attach Appendix "II(E) - Scaled Site Plan"

Provide a scaled map (scale 1 inch = 20 to 50 feet) of the site and immediate surrounding area. It must show the following, but not limited to: 1) Location and content of existing and removed USTs, product lines and dispensers. 2) Pertinent site features (i.e. buildings, roads, wells, waterways, sink holes, etc).

>> F. Attach Appendix "II(F) - Scaled Site Vicinity Map"

Provide a scaled (scale 1 inch = 200 to 500 feet) vicinity map showing the site in relation to surrounding general features. It must show the following, but is not limited to:

1) Pertinent general features (i.e. buildings, roads, waterways, sinkhole, etc.)

2) Location of properties adjacent to the site affected or potentially affected by the contamination

List below the names of owners of property affected or potentially affected by the contamination. Ensure the names correspond to the data provided on appendix "II(F) Scaled Site Vicinity Map."

	Property Owner Name	Property Address	Owner Mailing Address
12	Richard A. Porter	510 Schmidt Road Davenport, Iowa 52802	510 Schmidt Road Davenport, Iowa 52802
13	Henry Lischer	2311 Rockingham Road Davenport, Iowa 52802	1120 Coffelt Avenue Bettendorf, Iowa 52722
14	Clark Owens Oil Company	Clark Super 100 2365 Rockingham Road Davenport, Iowa 52802	Clark Super 100 2365 Rockingham Road Davenport, Iowa 52802
15	Dayle F. Ahrens	2347 Rockingham Road Davenport, Iowa 52802	2347 Rockingham Road Davenport, Iowa 52802
16	Jeraldine Leras	2353 Rockingham Road Davenport, Iowa 52802	2353 Rockingham Road Davenport, Iowa 52802
17	Minneapolis, St.Paul, & Pacific Railroad Company	See "Scaled Site Vicinity" map	P.O. Box 6205 Chicago, Illinois 60680
18			
19			
20			
21			
22			

III. Soil Sampling Methods & Findings

(CONFINE YOUR ANSWER TO THE SPACE PROVIDED)

A. Boring number and placement.

Explain and justify the rationale used to determine the number and placement of soil borings. Factors that should be taken into consideration when developing the rationale include site stratigraphy, media conductivity, mobility of contaminants and duration of the release. The number and placement of borings must be sufficient to allow the:
1) determination of the lateral and vertical extent of soil contamination, 2) accurate description of site stratigraphy, and 3) identification of the transition zone between those areas that do and do not exceed the soil contamination cleanup level. The identification of the transition zone will require the construction of contours developed through the interpolation of data. Additional information will be required to substantiate the location of contour lines if it is determined that the lines are not consistent with the rationale or data provided, or the interpolation techniques appear to be questionable.

USTs #1 and #2 were removed on October 19, 1990 by Alter Environmental Services (AES). Samples were collected for analysis from beneath the former tank locations and from a point along the product piping of Tank #2. At the time the tanks were removed, AES believed that UST #2 contained fuel oil. Information obtained during the SCR investigation indicates that gasoline was stored in UST #2. The sample taken from below UST #2 was not analyzed for gasoline, but for fuel oil (by the OA-2 method). The presence of hydrocarbons as fuel oil, as detected by the OA-2 analysis, is not related to the contents of the UST#2. Laboratory results indicated that contamination of the soil beneath both of the tanks exceeded IDNR action limits. The sample from beneath the product piping contained hydrocarbon levels below action limits. (See the "Soil Contamination Plume Map" and the "Summary of Analytical Data" for sample locations and lab results.)

Dahl & Associates, Inc. (DAHL) advanced 12 testborings (TBs) to investigate the potential impact to soil by gasoline from the former USTs. Four of the TBs were converted to monitoring wells (MWs) for the purpose of groundwater sampling, hydraulic conductivity testing, and groundwater gradient and flow direction determination. Drilling began on May 21, 1992, north of UST #1 (see Scaled Site Plan)with the installation of TB-1 in the assumed up-gradient direction from the tank basin, to establish the up-gradient extent of impacted soil and provide a background sample. No hydrocarbons were detected in TB-1 while drilling. TBs 2 through 5 were drilled to the east, south, and west of the tank basin, with their positions somewhat limited by structures on the site. Soil encountered in TB-5 showed signs of possible hydrocarbon impact in field screening.

On May 26, 1992, drilling continued around the UST #2 basin with TBs 6 through 10 being advanced. TB-6 was drilled along the removed product line associated with UST #2; no hydrocarbon impacted soil was detected. TB-7 was drilled west of the UST basin, TB-8 directly adjacent to the basin on the southeast side, TB-9 to the southeast of the basin, and TB-10 to the east of the basin. Soil from TB-7 soil showed no evidence of hydrocarbon impact. Soil from TB-8, 9, and 10 showed visible signs of hydrocarbons and moderate PID readings from headspace samples (in the 30 to 60 ppm range). Laboratory analysis of soil from TB-8, directly adjacent to the UST#2 basin indicated 19 ppm total hydrocarbons as gasoline (below action levels).

On July 15, 1992, TB-16 was advanced to the east of UST#2 to verify the extent of gasoline impacted soil. Laboratory analysis of soil from TB-16 indicated 18 ppm total hydrocarbons as gasoline (below action levels). TB-24 was advanced to the east of UST#1 to provide a groundwater sampling point for analytical testing and groundwater flow determination.

On October 1, 1993, DAHL reopened the UST#1 basin at the request of the responsible party. The excavation was undertaken in an effort to remove all soil contaminated by gasoline associated with the former USTs. Fill material was removed, and native clayey soil was encountered at a depth of 6 to 7 feet below the land surface. The soil had a gasoline odor and a headspace sample registered >200 ppm on a PID. Field screening of soil indicated that soil beneath the southeast corner of the foundation of the adjacent building was impacted. At that point the excavation was stopped, as it was impossible to remove the impacted soil beneath the building foundation. Approximately 10 cubic yards of contaminated soil was taken to the Scott County landfill for disposal, and the basin was backfilled with slag.

The TBs advanced on this site are sufficient to define the variability in the soil types, and provide an accurate depiction of the site stratigraphy. No contamination of the soil by gasoline exceeding 100 ppm was detected by TBs advanced in this investigation. The plume of gasoline impacted soil appears to be confined to the area under and directly adjacent to the former UST basins

> > B. Attach Appendix "III(B) - Soil Boring Logs"

Complete and attach an IDNR form 542-1392 for each soil boring at the site.

C. Explain the actions taken to prevent cross-contamination between boreholes during installation and sampling.

Testborings were advanced with a truck-mounted Model B-57 Mobile Drill using hollow-stem, continuous-flight augers with an interior pilot assembly. The DAHL drill crew had sufficient augers to advance three TBs before needing to decontaminate the equipment with an on-site, high-pressure cleaner. Two split-barrel samplers were used on the drill rig. The geologist decontaminated the sampler after each use. Decontamination of the samplers consisted of a thorough wash in a water-trisodium phosphate solution, a tap water rinse, and a final rinse with deionized water.

D. List vapor equipment if used. Describe its use and evaluate conclusions drawn from vapor results and calibration procedures. Equipment must be calibrated at the beginning and end of each day at the site, at a minimum.

DAHL used a Model 101 HNU Systems Portable Photo-ionization Analyzer™ (HNU) with a 10.2 eV lamp. The HNU is a trace gas detector sensitive to a variety of volatile organic compounds (VOCs). The HNU was calibrated twice daily to isobutylene (benzene) and used to measure the concentration of VOCs (ionization potential 10.2 eV or below) present in the boring samples. Soil samples were collected from the TBs at two foot intervals and placed in head-space jars for field screening. The data from field screening was used as a guide to determine the placement of additional TBs.

Tabulate Daily Calibration Data In The Chart Below

DATE	CALIBRATION (PPM)				DATE	CALIBRATION (PPM)			
	Standard	Start	During	End		Standard	Start	During	End
5/21/92	57	57		57					
5/22/92	57	57		57					
5/26/92	57	57		57					
7/15/92	55	55		55					
7/20/92	55	55		55					
10/1/93	56	56		54					

E. Describe soil sample collection methods and explain why the methods provide a representative sample. Split spoons and hollow stem augers producing a continuous core are acceptable soil sampling devices. At a minimum, soil samples must be collected at 5 foot intervals and when changes in the formation occur for soil observations, vapor screening and other indicated analyses.

TBs were advanced with a truck-mounted Model B-57 Mobile Drill rig. Hollow-stem, continuous-flight augers with an interior pilot assembly were used on this project. The augers have an outside diameter of 8.625 inches, and an inside diameter of 4.25 inches. The method was chosen because it complies with American Society for Testing and Materials (ASTM) method D-1586, which is an industry standard. Soil samples were collected from the TBs at intervals specified by the geologist, between the land surface and the water table of the uppermost unconfined aquifer. Soil samples were collected at 2 foot intervals for purposes of soil classification and jar-headspace analyses. In addition, a minimum of one sample per boring was collected for laboratory analyses from a point directly above the soil water interface.

>> F. Attach Appendix "III(H) - Soil Contamination Plume Maps"

Provide soil contamination plume maps depicting the full extent of vadose soils exceeding the soil contamination corrective action level under 135.7(9) and the levels of contamination within the plume. The extent of off-site soil contamination must be investigated. Label boring locations with the petroleum hydrocarbons concentrations used to determine the extent of the plume. The map must contain a sufficient number of data points to adequately justify the construction of plume contour lines. Identify borings used to determine hydraulic conductivity.

IV. Groundwater Sampling Methods & Findings

(CONFINE YOUR ANSWER TO SPACE PROVIDED)

A. Boring number and placement.

Explain and justify the rationale used to determine the number and placement of groundwater monitoring wells. Factors that should be taken into consideration when developing the rationale include site stratigraphy, media conductivity, mobility of contaminants and duration of the release. The number and placement of wells must be sufficient to allow the 1) determination of the lateral and vertical extent of groundwater contamination, 2) accurate description of site stratigraphy, and 3) identification of the transition zone between those areas that do and do not exceed the contamination cleanup level. The identification of the transition zone will require the construction of contours developed through the interpolation of data. Additional information will be required to substantiate the location of contour lines if it is determined that the lines are not consistent with the rationale or data provided, or the interpolation techniques appear to be questionable.

One groundwater monitoring well was installed on 1/10/91, as part of the tank closure, and one groundwater sample was taken for analysis. The monitoring well, designated as MW-5 on the Scaled Site Plan, is located 20 feet south of UST basin #1. Analytical results of the groundwater sample from MW-5 indicate that the gasoline components, benzene, ethylbenzene, xylene, and toluene (BETX) were not detected in the groundwater by the OA-1 method.

Dahl & Associates, Inc. (DAHL) advanced 12 TBs on this site and converted 4 of those to MWs. Laboratory analysis of groundwater samples from these 4 wells found no BTEX components by the OA-1 method. MW placement was determined at the time of drilling in the following manner:

TB-1 was converted to MW-1 to provide an up-gradient, background sample. MWs 2, 3, and 9 were placed down gradient of the UST basins to determine the extent of hydrocarbon impact to the groundwater, if present. MW placement was restricted by underground utility lines and surface structure locations. MW-5 is a pre-existing well that is located down gradient from UST #1.

All MWs installed by DAHL plus MW-5 were used in determining the groundwater gradient and flow direction at this site.

> > B. Attach Appendix "IV(B) - Monitoring Well Construction Diagram"

Complete and attach a DNR form 542-1392 for each monitoring well constructed at the site.

C. Explain permanent monitoring well construction.

If the following well construction materials or dimensions vary, indicate the variations on DNR Form 542-1392.

1) method of cleaning well components prior to installation. New materials were used in MW construction.

2) casing and screen material. 2" schedule 40 polyvinyl chloride (PVC).

3) screen slot size. 0.010".

4) how are the sections of casing and screens connected. Flush tread joints with O-rings.

5) method used to install filter pack and seals. Auger flights were left in the hole to maintain the integrity of the borehole. The screen and casing were inserted inside the hollow-stem auger and sand filter pack was poured into the void space between the interior of the auger and the exterior of the screen and casing, while the augers were gradually reversed out of the hole. The sand pack was installed from the bottom of the boring to 2 to 3 feet above the top of the 10 foot screen. A 2 to 3 foot bentonite slurry seal was then established on top of the sand filter pack. Neat cement was poured from the top of the bentonite seal to grade to finish the well.

6) actions taken to prevent cross contamination of wells during construction and sampling. Clean auger flights were used to advance the boring and new materials were used in the MW construction. Disposable bailers were used to collect water samples from each MW. The sample were transferred from the bailer into a clean laboratory prepared sample jar.

7) monitoring well development procedures. The monitoring wells are developed by bailing the well free of sediments by removing at a minimum, three well volumes.

D. For samples collected from boreholes:

(Temporary casing and screen are required prior to sample collection.)

1) Describe the type and use of temporary casing and screen. DAHL did not sample groundwater from testborings.

2) Explain and justify the adequacy of well development procedures to ensure a representative sample. N/A

E. Explain and justify the adequacy of groundwater sampling and well purging methods.

Monitoring wells were developed following installation by bailing a minimum of three well volumes of water to clear the well of sediments. The wells were then allowed to stabilize before the technician returned to collect groundwater samples. Prior to sampling the well, an additional three well volumes of groundwater were removed from the monitoring well to draw down the water table and create an influx of fresh groundwater for sampling. Groundwater samples were retrieved from the well using factory-decontaminated, disposable well bailers.

F. Groundwater Data for Contour Map Development *(SURVEY DATA FROM ADJACENT SITES MAY BE UTILIZED)*

Well Boring Number	Date Measured	Static water Level (ASL) (to 0.01 ft)	Water Level Corrected due to Free Product* (Yes/No)	Product Depth	Ground Surface Elevation (ASL) to 0.1 ft)
MW-1	6/30/92	562.06	NO	inches	568.04
MW-2	6/30/92	561.76	NO	inches	567.39
MW-3	6/30/92	561.61	NO	inches	567.10
MW-5	6/30/92	561.58	NO	inches	567.74
				inches	
				inches	
				inches	
				inches	
				inches	
				inches	
				inches	
				inches	
				inches	

*Describe below the correction method used to determine the static water level.

N/A

Describe the benchmark used to survey for groundwater surface elevations.

The monitoring wells were initially surveyed relative to a fire hydrant on site. The fire hydrant was then tied into a survey point provided by a City of Davenport Engineer. This survey point was the top bolt of the fire hydrant on the northwest corner of Lincoln Road and Rockingham Road and it has an elevation of 575.08 ASL.

>> G. Attach Appendix "IV - Groundwater Contour Map"

Provide a groundwater contour map based on work done at the site and the adjacent area. All wells at the site must be shown on the map. Wells constructed in different aquifers must be identified. Indicate the groundwater flow direction with an arrow. Groundwater contours and elevations at each data point used for contouring must be labeled on the map. Contours must be consistent with the observed water level elevations. Measurements of static water level and depth to bottom of the wells must be taken. An adequate number of water levels must be measured in each well to determine the static water level. Static water levels must be measured to the nearest 0.01 foot. Identify wells used to determine hydraulic conductivity.

H. Describe and explain the following:

1) identify the methodology and device used to determine static groundwater levels.

DAHL utilizes a Nikon AX-1 Automatic Level and a surveying rod graduated in 0.01 foot increments for surveying monitoring well ground and riser elevations to a common NGD benchmark. Surveying is done by the direct differential leveling method. Water levels were measured from the surveyed riser to water level with a Solinist Water Level Indicator.

2) provide confirmation that the methodology used will provide the required levels of accuracy.

The Nikon level allows for a maximum reading accuracy of 0.005 feet. The Solinist water level indicator allows for a reading accuracy of 0.01 foot. The technician surveys the site in a loop, returning to the benchmark. Closure error indicates the accuracy of the survey. If the error exceeds 0.01 foot per turning point, the site is resurveyed.

3) groundwater flows and any anomalous water levels.

DAHLs water level data taken on 6/30/92 and 7/31/92 indicate a general flow direction to the southeast.

4) fluctuations in water levels with special emphasis on those which may alter general groundwater gradient or flow direction.

No shifts in groundwater flow direction were noted.

>> I. Attach Appendix "IV(I) - Groundwater Contamination Plume Maps"

Provide groundwater contamination plume maps depicting the full extent of free phase product and dissolved phase contamination exceeding the groundwater corrective action levels under 135.7(9) and the levels of groundwater contamination within the plume. The extent of off-site groundwater contamination must be investigated. Label each data point with the contaminant concentrations used to define the extent of the plume. The map must contain a sufficient number of data points to adequately justify the construction of plume contours. Identify free product thickness.

V. Sampling Quality Control

(CONFINE YOUR ANSWER TO THE SPACE PROVIDED)

Provide a statement that indicates the quality control/quality assurance (QC/QA) procedures used during the site investigation were at least as stringent as those contained in IDNR's Leaking Underground Storage Tank Quality Assurance Plan.

DAHL follows the Iowa Department of Natural Resources Leaking Underground Storage Tank Quality Control - Quality Assurance Plan when collecting samples for laboratory analysis. This includes the collection and laboratory analysis of duplicate and blank samples.

VI. Hydrogeological Cross-Sections

>> Attach Appendix "VI - Hydrogeological Cross-Section Diagram"

Develop, from the borings that were required to identify the extent of contamination, stratigraphically correlated hydrogeologic cross-sections or three-dimensional diagrams which adequately define the spatial relationships of subsurface materials at the site. The cross sections should illustrate the materials in the contamination zone. The sections or diagrams must include the following information:

1) Identification of types and characteristics of geological materials present.
2) Identification of contact zones between different geologic materials, noting zones of high permeability or fracture.
3) Detailed borehole information including location, depth of termination and zone of saturation.

VII. Hydraulic Conductivity

(CONFINE YOUR ANSWER TO THE SPACE PROVIDED)

A. Determine and record here the hydraulic conductivity of subsurface materials at the site. Identify borings and wells used to determine hydraulic conductivity. Include calculations and data used to obtain the values.

Monitoring well	Hydraulic conductivity
MW-3	K = 1.803 meters/day
MW-5	K = 2.017 meters/day
MW-9	K = 18.99 meters/day

(see Appendix VII - Hydraulic Conductivity for calculations)

B. Indicate the method used.

DAHL uses the Bouwer-Rice method.

C. If an equivalent method was used to determine conductivity, evaluate its' accuracy.

The Bouwer-Rice method was used.

D. Explain why the location/number of data points where hydraulic conductivity was determined adequately provides a representative indication of conductivity at the site.

The hydraulic conductivity tests results from MW-3, 5, and 9 range from 1.8 and 19 m/day. These high conductivities reflect the porous nature of the sandy slag backfill found at the site from the surface to 3-4 feet. Due to the shallow water table, it was necessary to screen the MWs up into the backfill to insure that the screened interval was above the static water level. The hydraulic conductivity of the clays found at the bottom of most TBs is expected to be significantly lower than those measured, but the construction of the current MWs does not allow a representative test of the clay conductivity.

VIII. Receptor Survey

> > Attach Appendix "VIII(A) - Receptor Survey Map"

Provide a site area map that identifies the following:

A. Surface Water Body Survey. Location of surface water bodies (i.e. lakes, ponds, rivers, streams, etc.) within 1000 feet of the petroleum contaminated area. Include in the appendix an evaluation of the potential for a hydrogeological connections between the contamination and surface water. Justify the decision to conduct or not to conduct monitoring to determine the impact of contamination on surface water quality. Grab samples are typically collected to determine the impact of contamination on surface water quality. Samples taken upstream of the release can help establish the background levels for the compounds of concern. Subsequent samples taken downstream will provide information regarding contamination concentration versus travel time. If surface water sampling is conducted, provide a discussion of the sampling methodology and evaluate the adequacy of the sampling program. Tabulate the analytical results. Also record visual observations (i.e., sheen, sludge, scum, etc.). Label the narrative and analytical results in Appendix VIII pertaining to the above with the heading "Surface Body Receptor Survey".

B. Conduit Survey. Location of utility (i.e. power lines, storm and sanitary sewers, tile lines, etc.), natural (i.e. sinkhole, caves, etc.) conduits and confined spaces (i.e. basements, crawl spaces, etc.) within 200 feet of the area of petroleum contamination. Include a description of the investigation conducted to determine the potential for the conduits to act as pathways for vapors and product. The investigation must include soil sample collections for laboratory analysis and vapor monitoring. The focus of the investigation should be influenced by soil types, product type, phases and concentrations, location and depth of the utilities and confined spaces and groundwater levels. Tabulate the analytical results. Indicate if contamination has resulted in the presence of explosive vapors or caused physical damage to conduits or confined spaces. Label the narrative and analytical results in Appendix VIII pertaining to the above with the heading "Conduit Survey".

The following are recommended when conducting a vapor survey in an accessible utility conduit:

The vapor survey is required if there are reports of vapors or if the conduit has been impacted by the contamination or if there is the potential for vapors based on the type of substance release.

1) Use an explosimeter and photolonization detector (PID) to take vapor readings. Start at the manway closest the site. Work upstream and downstream to determine if and where the product vapors are entering, and the extent of the impacted area. "Crack" each manway cover and take readings of oxygen, explosimeter and PID. Repeat measurements at mid-depth and water level or bottom of the conduit.

2) Check air flow directions from the manway to determine if dilution of vapors is occurring.

3) Collect water or sewage samples. Observe for sheen and odors. If there is odor but no product, consider using the PID to obtain a head space analysis.

4) Check all incoming conduit branches. If odors are detected, continue the investigation upstream and down stream even if no product is present.

5) Check lift stations near the site.

The following are recommended when conducting a confined space survey:

1) Check confined spaces using an explosimeter and PID. Record names and addresses of building residents/owners.

2) Check for vapors near basements, sewer drains and near any foundation cracks.

C. **Groundwater Survey.** Identifying active, inactive, abandoned and plugged groundwater wells within 1,000 feet of the petroleum contaminated area. Groundwater professionals only need to report well information readily available from public entities (i.e. county health and zoning departments, IDNR, water Supply Section (515/242-6128), Geological Survey Bureau (319/335-1575) etc.) and water well owners. An on-site survey will be necessary to identify all the wells in a 300 feet radius of the petroleum contaminated area. Include in the appendix:

1) Copies of available well logs.

2) Name and address of each well owner. Correlate with well number.

3) Description of the plugging method for those wells not sealed according to chapter 567-39 IAC.

4) Complete the following Table *"Photocopy if additional space is needed"*

Well # as identified on Receptor Survey Map	W-15055	P.A.L.	Alter							
Well Status	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]
Active	[X]	[]	[X]	[]	[]	[]	[]	[]	[]	[]
Inactive	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]
Abandoned	[]	[X]	[]	[]	[]	[]	[]	[]	[]	[]
Plugged										
According to Chapter 39*	[]	[X]	[]	[]	[]	[]	[]	[]	[]	[]
Not according Chapter 39*	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]
Describe in the appendix the plugging process used for each well marked										
Well Use	For each Well, Mark All That Apply									
Public Well	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]
Private Drinking Well	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]
Industrial Water supply for:	Beverage bottling	Not used	Process Water	[]	[]	[]	[]	[]	[]	[]
Static Water Level Elevation	523.5	530 est.	540 est							
Well Depth Elevation	158	150 est.	440 est							
Well Diameter	N/A	12 inch	unknown							
Casing material	N/A	steel	unknown							
Well Log Provided										
NO	[]	[X]	[X]	[]	[]	[]	[]	[]	[]	[]
YES	[X]	[]	[]	[]	[]	[]	[]	[]	[]	[]

Label the narrative and information in Appendix VIII pertaining to the above with the heading "Groundwater Well Survey".

D. **Groundwater Barrier Survey.** Identify the location of barriers, (i.e., foundations, structures, parking lots, roads, natural, etc.) that could have an impact on the movement of the contamination. Explain the significance of the barriers by relating their presence to the hydrogeological conditions at the site. Label the narrative in Appendix VIII pertaining to the above information with the heading "Groundwater Barrier Survey".

IX. Certification of Site Health & Safety *REQUIRED*

Statement of Verification of On-Site Health & Safety Procedures

The On-Site Health & Safety Procedures and Conditions conform with applicable OSHA requirements.

YES [X] NO [ ]

X. Tabulation of Analytical Data

Photocopy this form if additional space is needed.

Soil Analytical Data Information

Provide a tabulation of analytical data for each soil boring or monitoring well. List each sampling event chronologically with the oldest data first. If borings were sampled on a particular day at different elevations, list the results for the samples closest to the ground surface first. Record all elevations as feet Above Sea Level (ASL).

Basin Sample Number	Tank #1 Basin	Tank #2 Basin	Tank #2 Piping						
Date Sampled	10/17/90	10/17/90	10/17/90						
Elevations (feet below ground surface)									
Ground Surface	0	0	0						
Soil Sample	8	8	3						
Static Groundwater									
Total Petroleum Hydrocarbons (ppm)	1035	Not Analyzed	Not Analyzed						
Extractable Hydrocarbons (ppm)	Not Analyzed	509	31						

Groundwater Analytical Data Information

Provide a tabulation of groundwater sampling analytical data. List the sampling events starting with the first well in the well identification scheme. If the well was sampled more than once, list each result chronologically. Record all elevations as feet Above Sea Level (ASL).

Boring/Well Number	MW-5								
Date	1/14/91								
Elevation (ft ASL)									
Ground Elevation	568.12								
Top of Screen	564.74								
Static Water Level	561.92								
Benzene (ppb)	<5								
Ethyl benzene (ppb)	<5								
Toluene (ppb)	<5								
Xylene (ppb)	<5								

> > Attach Appendix X *Laboratory Data Sheets*
Provide copies of all laboratory data sheets.

XI. Free Product

(CONFINE YOUR ANSWER TO THE SPACE PROVIDED)

A. Is free product present at the site? YES [ ] NO [XX]
B. If yes, indicate the date the "Free Product Removal Report" was submitted:
C. Discuss the status and evaluate the effectiveness of the free product removal system in relation to the hydrogeological conditions at the site.

Note: Free product was reported by John Hergert of Alter Environmental Services in a letter to Leslie Campbell of the IDNR on February 7, 1991. Free product (oil?) had been observed floating on the water sample removed from the down-gradient testboring installed for the tank closure. Groundwater retrieved from that TB was analyzed, and none of the BTEX components were detected (OA-1). No additional investigation of the free product was conducted at the time, and none was requested by the IDNR. Dahl & Associates, Inc. did not encounter free product while conducting the SCR investigation. No free product has been observed in the MWs installed during the SCR investigation.

D. Provide monthly reports to DNR on the attached forms 542-1424 and 542-1425.

X. Tabulation of Analytical Data

Photocopy this form if additional space is needed.

Soil Analytical Data Information

Provide a tabulation of analytical data for each soil boring or monitoring well. List each sampling event chronologically with the oldest data first. If borings were sampled on a particular day at different elevations, list the results for the samples closest to the ground surface first. Record all elevations as feet Above Sea Level (ASL).

Boring/ Well Number	TB-1	TB-2	TB-3	TB-4	TB-5	TB-5	TB-6	TB-7	TB-8
Date Sampled	5/21/92	5/22/92	5/22/92	5/22/92	5/22/92	5/22/92	5/26/92	5/26/92	5/26/92
Elevations (ft ASL)									
Ground Surface	568.36	568.31	568.25	567.89	568.43	568.43	567.40	567.38	567.47
Soil Sample	557.36	559.31	559.25	560.89	561.43	561.43	560.40	561.38	560.47
Static Groundwater	557.36	559.31	559.25	560.89	557.43	557.43	560.90	561.38	560.47
Total Petroleum Hydrocarbons (ppm)	ND	ND	ND	ND	38	33	ND	ND	19
Extractable Hydrocarbons (ppm)	-	-	-	-	-	-	-	-	-

Groundwater Analytical Data Information

Provide a tabulation of groundwater sampling analytical data. List the sampling events starting with the first well in the well identification scheme. If the well was sampled more than once, list each result chronologically. Record all elevations as feet Above Sea Level (ASL).

Boring/Well Number	MW-1	MW-2	MW-3	MW-5	MW-9				
Date	6/30/92	6/30/92	6/30/92	6/30/92	7/31/92				
Elevation (ft ASL)									
Ground Elevation	568.36	567.89	567.51	568.12	568.18				
Top of Screen	564.04	564.39	560.10	564.74	564.69				
Static Water Level	562.06	561.76	561.61	561.58	563.24				
Benzene (ppb)	ND	ND	ND	ND	ND				
Ethyl benzene (ppb)	ND	ND	ND	ND	ND				
Toluene (ppb)	ND	ND	ND	ND	ND				
Xylene (ppb)	ND	ND	ND	ND	ND				

> > Attach Appendix X *Laboratory Data Sheets*
Provide copies of all laboratory data sheets.

XI. Free Product

(CONFINE YOUR ANSWER TO THE SPACE PROVIDED)

A. Is free product present at the site? YES [] NO [X]
B. If yes, indicate the date the "Free Product Removal Report" was submitted:
C. Discuss the status and evaluate the effectiveness of the free product removal system in relation to the hydrogeological conditions at the site.

See previous page.

D. Provide monthly reports to DNR on the attached forms 542-1424 and 542-1425.

X. Tabulation of Analytical Data

Photocopy this form if additional space is needed.

Soil Analytical Data Information

Provide a tabulation of analytical data for each soil boring or monitoring well. List each sampling event chronologically with the oldest data first. If borings were sampled on a particular day at different elevations, list the results for the samples closest to the ground surface first. Record all elevations as feet Above Sea Level (ASL).

Boring/ Well Number	TB-16	TB-24							
Date Sampled	7/15/92	7/20/92							
Elevations (ft ASL)									
Ground Surface	567.20	568.18							
Soil Sample	560.20	560.18							
Static Groundwater	560.20	560.18							
Total Petroleum Hydrocarbons (ppm)	18	ND							
Extractable Hydrocarbons (ppm)	-	-							

Groundwater Analytical Data Information

Provide a tabulation of groundwater sampling analytical data. List the sampling events starting with the first well in the well identification scheme. If the well was sampled more than once, list each result chronologically. Record all elevations as feet Above Sea Level (ASL).

Boring/Well Number									
Date									
Elevation (ft ASL) Ground Elevation Top of Screen Static Water Level									
Benzene (ppb)									
Ethyl benzene (ppb)									
Toluene (ppb)									
Xylene (ppb)									

> > Attach Appendix X *Laboratory Data Sheets*
Provide copies of all laboratory data sheets.

XI. Free Product

(CONFINE YOUR ANSWER TO THE SPACE PROVIDED)

A. Is free product present at the site? YES [ ] NO [X]
B. If yes, indicate the date the "Free Product Removal Report" was submitted:
C. Discuss the status and evaluate the effectiveness of the free product removal system in relation to the hydrogeological conditions at the site.

See previous page.

D. Provide monthly reports to DNR on the attached forms 542-1424 and 542-1425.

XII. Contamination Source

A. Identify the source of contamination at the site.

The gasoline contaminated soil that exists in the basins of former USTs #1 and #2 is probably the result of leakage from the removed USTs, or from spillage during product dispensing and tank filling. No other sources of gasoline contamination have been identified by this investigation.

> > B. Attach Appendix "XII(B) - Off-Site Contamination Source Support Data"

If the contamination source identified in XIII(A) is an off-site source, justify your conclusion with analytical data and maps showing the site under investigation and potential off-site sources and groundwater flow direction.

XIII. SITE RISK CLASSIFICATION

A. HIGH RISK SITE CONDITIONS

The following describe high risk site conditions. Conditions numbered 7, 9, 13, and 14 include a means, based on specific site factors, for proposing a low risk classification. Check the appropriate box if documentation has been provided to substantiate the existence of specific site conditions that will result in low risk classification. A site is classified as high risk if any of the following conditions exist and documentation is not provided to confirm a low risk classification. All responses must be justified with technical and hydrogeological data obtained during the site assessment and the application of recognized engineering, geological and hydrogeological principles. Give your justification for each answer on appendix "XIII - Site Risk Classification Justification." Number the responses to correspond with the condition description (i.e., A1, A2, etc.).

CONDITION DESCRIPTION	
1) The Threshold Limit Value-Time Weighted Average (TLV-TWA) for benzene in occupied structures exceeds or is likely to exceed 10 parts per million for more than 8 hours per day.	[] YES,HIGH RISK [X] NO
2) The concentration of combustible gases in structures, basements, crawl spaces, utility conduits, storm or sanitary sewers, vaults or any other confined space exceeds or is likely to exceed 10% of the Lower Explosive Limit (LEL).	[] YES,HIGH RISK [X] NO
3) Surface water quality criteria standards contained in subrule 567-61.3(455B) of the Iowa Administrative Code are exceeded or are likely to be exceeded due to a hydrogeologic connection between the surface water and the contamination zone.	[] YES,HIGH RISK [X] NO
4) Petroleum contaminated soil exceeding 100 mg/kg total organic hydrocarbons is in contact with a utility trench containing a PVC drinking water transmission line.	[] YES,HIGH RISK [X] NO
5) The petroleum contamination in utility trenches exceeds the corrective action levels in 135.8(8) of the Iowa Administrative Code.	[] YES,HIGH RISK [X] NO
6) Petroleum contamination is present at concentrations or concentrations are likely to occur, to cause physical damage to a utility conduit or a structure.	[] YES,HIGH RISK [X] NO
7) Soil with a total organic hydrocarbon level greater than 100 mg/kg is located within 1,000 feet of an active well used as a public or private water source. A site may be classified as low risk if a groundwater professional can demonstrate the water source will not be impacted by the soil contamination to the extent that an MCL is exceeded or in the absence of an MCL and Action Level is exceeded. Factors that must be considered in evaluating the impact of the remaining soil contamination include well depth, construction, radius of influence and use; area hydrogeological characteristics; soil permeability; transmissivity, and contamination concentrations and persistence; chemical characteristics, and migration potential of the released substance.	[X] YES, HIGH RISK [] NO Documentation is provided to support a LOW RISK CLASSIFICATION [X] YES, LOW RISK [] NO
8) Soil with a total organic hydrocarbon level greater than 100 mg/kg is located within the seasonal high groundwater level of a protected groundwater source or groundwater serving a public or private water source.	[] YES,HIGH RISK [X] NO
9) The petroleum release occurred in an area of fractured limestone or karst topography (i.e., topography formed on limestone, gypsum, and other rocks by dissolution, characterized by sinkholes, caves and underground drainage. A site may be classified as low risk if a groundwater professional can demonstrate the water source will not be impacted by the soil contamination to the extent that an MCL is exceeded or in the absence of an MCL and Action Level is exceeded. Factors that must be considered in evaluating the impact of the remaining soil contamination include well depth, construction, radius of influence and use; area hydrogeological characteristics; soil permeability; transmissivity, and contamination concentrations and persistence; chemical characteristics, and migration potential of the released substance.	[X] YES, HIGH RISK [] NO Documentation is provided to support a LOW RISK CLASSIFICATION [X] YES, LOW RISK [] NO
10) A public or private water supply is or is likely to be contaminated to the extent that an MCL is exceeded; or in the absence of an MCL, an Action Level is exceeded.	[] YES,HIGH RISK [X] NO
11) A protected groundwater source is contaminated to the extent that an MCL is exceeded; or in the absence of an MCL, an Action Level is exceeded.	[] YES,HIGH RISK [X] NO

12) The contaminated groundwater plume is within 100 feet of natural or man-made structures or conduits that could allow the vertical or horizontal migration of contaminants to a protected groundwater source that is used as a public or private water source.	[] YES,HIGH RISK [X] NO
13) The contaminated groundwater plume is within 1,000 feet of an active public or private water source. A site may be classified as low risk if a groundwater professional can demonstrate the water source will not be impacted by the soil contamination to the extent that an MCL is exceeded or in the absence of an MCL and Action Level is exceeded. Factors that must be considered in evaluating the impact of the remaining soil contamination include well depth, construction, radius of influence and use; area hydrogeological characteristics; soil permeability; transmissivity, and contamination concentrations and persistence; chemical characteristics, and migration potential of the released substance.	[] YES, HIGH RISK [X] NO Documentation is provided to support a LOW RISK CLASSIFICATION [] YES, LOW RISK [] NO
14) The material separating groundwater serving as a public or private water source, or which is a protected groundwater source, from soil with a total organic hydrocarbon level greater than 100 mg/kg which has a hydraulic conductivity greater than 10^{-4} meters per day. The separating material must have a hydraulic conductivity less than or equal to 10^{-4} meters per day, a minimum thickness of three meters and be free of subsurface discontinuities between the contamination zone and the groundwater for the site to be classified low risk. A site can be classified low risk if a groundwater professional can demonstrate with hydrogeological and risk assessment data that the separating material will prevent or inhibit the migration of contaminants to the groundwater to the extent that an MCL or in the absence of an MCL, an Action Level,will not be exceeded. A sufficient number of measurements of the hydraulic conductivity shall be made to accurately identify the hydrogeologic conditions of the separating material under the full area extent of the contamination zone. Measurements shall be made at a minimum of two locations. The distance between adjacent measurement locations shall not exceed 100 feet. The department may require additional measurements based on the hydrogeological complexity of the site.	[X] YES, HIGH RISK [] NO Documentation is provided to support a LOW RISK CLASSIFICATION [X] YES, LOW RISK [] NO

B. LOW RISK SITE CONDITIONS

The following describe low risk site conditions. Check the boxes that describe the site conditions.

Conditions Description	
1) The soil total organic hydrocarbon concentration exceeds 100 mg/kg or the groundwater concentration exceeds an MCL or in the absence of an MCL, an Action Level is exceeded, but high risk conditions do not exist and are not likely to occur.	[X] YES, LOW RISK [] NO
2) High risk conditions numbered 7,9,13 and 14 exist, but documentation is provided to substantiate the claim that specific site conditions are present that will result in a low risk classification.	[X] YES, LOW RISK [] NO

C. NO ACTION REQUIRED SITE CONDITIONS

The following describe no action required site conditions. Check the boxes that describe the site conditions.

Conditions Description	
1) The soil total organic hydrocarbon concentration is equal to or less than 100 mg/kg and the groundwater contamination is equal or less than an MCL or in the absence of an MCL, is equal to or less than an Action Level and high risk or low risk conditions do not exist and are not likely to occur.	[] YES, NO ACTION [X] NO

>> **Attach Appendix "XIII - Site Risk Classification Justification"**

XIV. CORRECTIVE ACTION RESPONSE

The corrective action response involves the identification of the best available treatment technology or best available management practices to address the contamination at the site. The corrective action response must be consistent with the site risk classification.
Contamination sites classified as high risk can be reclassified to low risk if the condition causing the classification is abated. For example, if the only reason a site was classified high risk is because the soil around a PVC water line is contaminated, the site could be reclassified to low risk if the water line was replaced. For such sites identified as high risk, propose a corrective action response that will result in the reclassification of the site to low risk.
Please proceed to part "A" if the site has been classified as high risk. Sites classified as low risk are subject to best management practices which will include contamination monitoring. Please proceed to part "B" if the site has been classified as low risk. Sites classified as no risk are not required to remediate or monitor.

A. High Risk Site Corrective Action Recommendations

1. Identify below the contamination phases and estimated phase volumes at the site:

Vadose zone soil contamination present?	YES []	NO []
If yes, approximate volume of contaminated soil present	_____	Cubic Yards
Dissolved phase petroleum product present in the groundwater?	YES []	NO []
If yes, approximate volume of contaminated groundwater present	_____	Gallons
Free phase petroleum product present?	YES []	NO []
If yes, approximate volume of free phase product present	_____	Gallons

2. List at least two treatment technologies available to address the contamination at the site.

1. _____.
2. _____.
3. _____.
4. _____.

>>3. Attach Appendix "XIV (A3) - Treatment Technology Evaluation"

1)TREATMENT TECHNOLOGY. Identify the treatment technology.

2)TREATMENT METHOD EFFECTIVENESS. Evaluate the treatment method's capability to reduce the compounds of concern to acceptable levels and estimate the length of time it will take to reduce the compounds to these levels.

3)RELIABILITY. Evaluate factors that may have an impact on the reliability of the treatment system. Consider such factors as groundwater quality, biological growths, design complexity, weather, operational maintenance and monitoring requirements, etc.

4)SITE CHARACTERISTICS. Evaluate the factors that may have an impact on the practicality of using the treatment method. Consider such factors as site geology, hydraulic conductivity, groundwater quality, site location and ability to maintain and monitor hydraulic control of the groundwater plume.

5)COST ESTIMATES. Evaluate start-up, operational and maintenance costs.

6)ENVIRONMENTAL, PUBLIC HEALTH AND SAFETY BENEFITS AND DISADVANTAGES. Evaluate the environmental and public health and safety benefits and disadvantages of the treatment system. Consider such factors as air emissions, waste-water discharges, groundwater injection systems, permits required, vandalism, access, etc.

>> 4. Attach Appendix "XIV(A4) - Best Available Technology"

List your selection of the best available treatment technology to address the contamination phases at this site. Provide a detailed justification and explanation for selection of this technology. Base the justification narrative on professional judgment considering actual cost, actual equipment or techniques currently in use, published technical articles, site hydrogeology and research results, engineering and groundwater professional reference materials, consultation with experts in the field, capital and operation costs, and guidelines or rules of other regulatory agencies. Innovative treatment technology design selections are encouraged but must be accompanied by system operational and technical data that will support the best available treatment technology selection. Do no initiate treatment system design work until the proposed best available treatment technology concept has been accepted by the IDNR.

5. Report Submittal

Please send one copy of the completed SCR and appendices to the Iowa Department of Natural Resources, Lust Coordinator, Wallace Building, Des Moines, IA 50319 and one copy of the completed SCR and appendices to GAB Business Services, Inc. POB 3837, Des Moines, IA 50322. Additional information or clarification may be requested.

Following approval of the SCR, IDNR will require the submission of a Corrective Action Design Report (CADR). The CADR will contain technical information specific to the treatment system chosen to remediate the site and a monitoring proposal designed to determine the effectiveness of the system.

B. Low Risk Site Corrective Action Recommendations

1. Identify below the contamination phases and estimated phase volumes at the site:

Vadose zone soil contamination present?	YES [X]	NO []
If yes, approximate volume of contaminated soil present	100	Cubic Yards
Dissolved phase petroleum product present in the groundwater?	YES []	NO [X]
If yes, approximate volume of contaminated groundwater present	_____	Gallons
Free phase petroleum product present?	YES []	NO [X]
If yes, approximate volume of free phase product present	_____	Gallons

>>2. Attach Appendix "XIV(B2) - Best Management Practice"

Provide a detailed best management practice plan. At a minimum, the plan must contain:

1) Description of leak detection activities that will be implemented at the site.

2) Schedule of activities and description of any prohibited practices, and other management practices, or a combination thereof, which will be implemented to prevent additional contamination.

3) Assurances the analytical and investigatory technical requirements discussed and referenced in this SCR will be followed. Vapor analysis results will be accepted provided that:

a) It can be demonstrated that the media being sampled and sampling points are conducive to the detection of contamination movement and increases in concentration (i.e., the sampling radius must be determined).

b) Gas chromatography or similar method of analysis is used for analysis of samples.

c) Samples for laboratory analysis must be obtained if the following screening levels are exceeded.

0.1 mg/l TPHC (near diesel facilities) for soil gas (in situ, partial vacuum extraction)
1.0 mg/l TPHC (near gasoline facilities) for soil gas (in situ, partial vacuum extraction)
0.5 mg/l TPHC for groundwater (head space analysis)
1.0 mg/kg TPHC (near diesel facilities) for soil (head space analysis)
10.0 mg/kg TPHC (near gasoline facilities) for soil (head space analysis)

>> 3. Attach Appendix "XIV (B3) - Monitoring Plan"

Provide a monitoring plan that will ensure any significant increase in contamination concentration or movement is detected. The number and locations of monitoring sites must be consistent with contamination plume definition, soil permeabilities, hydraulic conductivities and groundwater flow direction. Include site maps to show monitoring locations. The following frequency is recommended. Any proposed reduction in the recommended sampling must be justified. Factors that must be considered in the justification include the migration potential of the released substance, potential impact on the environment and public health if migration of the soil or groundwater contamination occurs, area hydrogeologic characteristics, soil permeability, transmissivity, and contamination concentrations and persistence.

YEARS AFTER APPROVAL OF THE MONITORING PLAN	SAMPLE IN
1) one through three	calendar quarters 2, 3 and 4
2) four through six	calendar quarters 2 and 4
3) seven through nine	calendar quarter 2
4) twelve	calendar quarter 2

4. Report Submittal

Please send one copy of the completed SCR and appendices to the Iowa Department of Natural Resources, Lust Coordinator, Wallace Building, Des Moines, IA 50319 and one copy of the completed SCR and appendices to GAB Business Services, Inc. POB 3837, Des Moines, IA 50322. Additional information or clarification may be requested.

Monitoring results must be submitted in the format required by the IDNR's Site Monitoring Report (SMR). A copy of the Site Monitoring Report will be provided after the SCR is approved.

The recommendations and methodologies contained in this report represent our professional opinions and are based on accepted analytical practices and documented industry standards. Services performed on this project have been conducted in a manner consistent with standards of care practiced by members of this profession in this area, under similar time and budget restraints. Beyond this, no warranty is expressed or implied.

This report was prepared by:

_____ _____

James Prosser M.S. DATE
Assistant Project Manager
Dahl & Associates, Inc.

Reviewed by:

_____ _____

R. Jonathan Paetz DATE
Senior Project Manager
Dahl & Associates, Inc.

II(D) - Topographical Site Map

PROJECT SITE LOCATION

NORTH

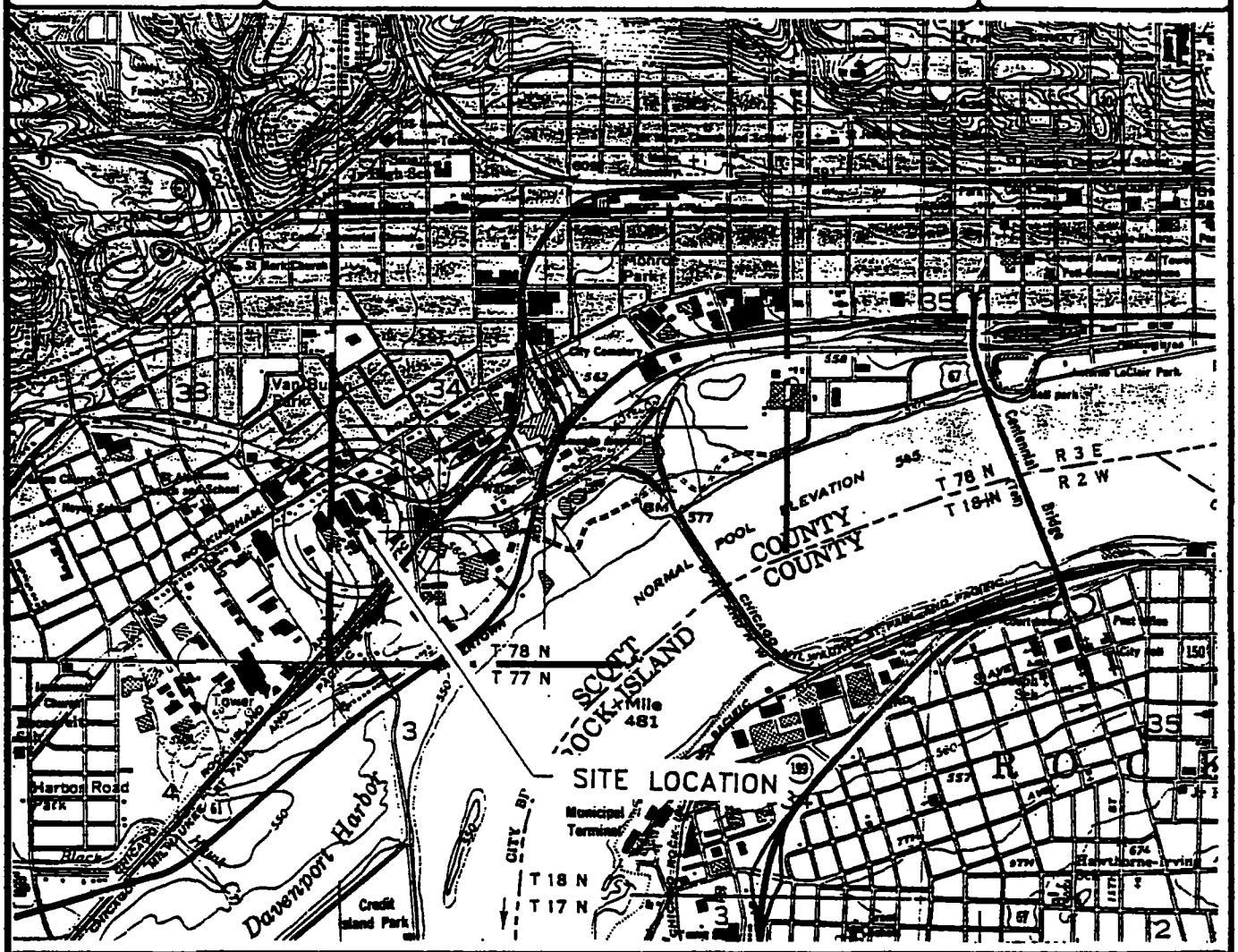
W E S

LAT. N. 41° 30' 59"	T. 78N
LONG. W. 90° 36' 41"	R. 3E
	SEC. 34

U.S.G.S. STANDARD NAME
DAVENPORT EAST, IOWA–ILL.

IOWA

QUADRANGLE LOCATION



SCALE 1:24000

1000 0 1000 2000 3000 4000 5000 6000 FEET

1 5 0 1 KILOMETER

CONTOUR INTERVAL 10 FEET

Heavy duty — Light duty

Medium duty — Unimproved dirt = = = =

Interstate Route U.S. Route State Route

BASED ON U.S.G.S. 7.5 MINUTE SERIES (TOPOGRAPHIC) MAP

2627 Hickory Grove Road
Davenport, IA 52804
Phone (319)388-0888
FAX (319)388-9410

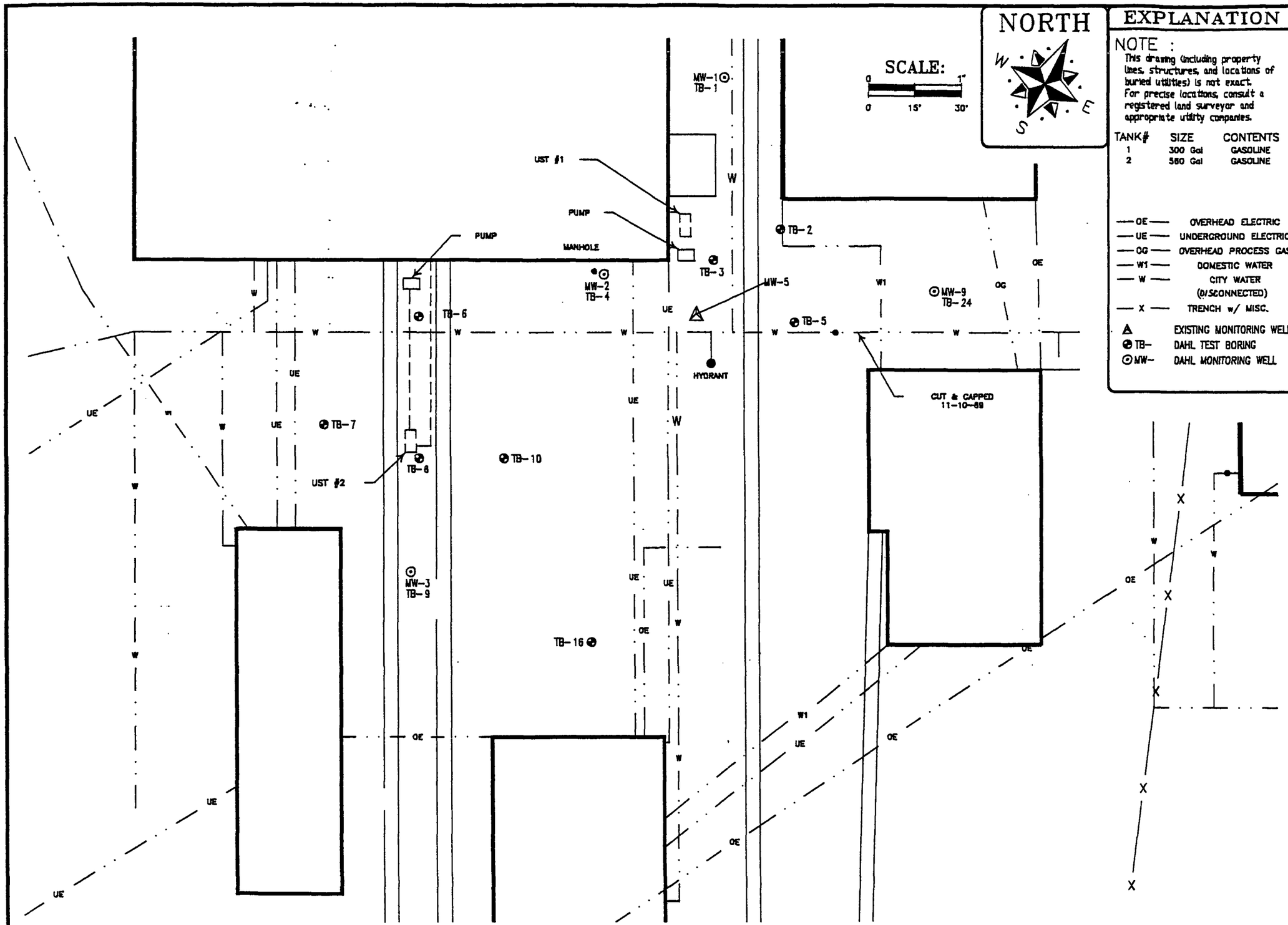
DAHL & ASSOCIATES, INC.
Environmental Consultants, Contractors & Engineers

TOPOGRAPHICAL SITE MAP
PACIFIC ACTIVITIES LIMITED

DAVENPORT , IOWA

DATE DRAWN	7/10/92	DRAWN BY	Don Mc.	APPR. BY	
PLOT DATE	7-10-92	AutoCAD FILE NAME	1097-01A	PLOT SCALE	1" =2000'
PROJECT NUMBER	QE1A1097	DRAWING NUMBER	A- 01 -A	FIG. #	

II(E) - Scaled Site Plan



EXPLANATION

NOTE :
This drawing (including property lines, structures, and locations of buried utilities) is not exact. For precise locations, consult a registered land surveyor and appropriate utility companies.

TANK#	SIZE	CONTENTS
1	300 Gal	GASOLINE
2	560 Gal	GASOLINE

—OE—	OVERHEAD ELECTRIC
—UE—	UNDERGROUND ELECTRIC
—OG—	OVERHEAD PROCESS GAS
—W1—	DOMESTIC WATER
—W—	CITY WATER (DISCONNECTED)
—X—	TRENCH w/ MISC.
△	EXISTING MONITORING WELL
⊕ TB-	DAHL TEST BORING
⊙ MW-	DAHL MONITORING WELL

2627 Hickory Grove Road
Davenport, IA 52804
Phone (319)388-0888
FAX (319)388-9410

DAHL & ASSOCIATES, INC.
Environmental Consultants, Contractors & Engineers

DAHL STD NO: QEIA1097-B-00-A

SCALED SITE PLAN

PACIFIC ACTIVITIES LIMITED

DAVENPORT, IOWA

PLOT SCALE 1"=30'

AutoCAD FILE NAME 1097-03A

PLOT DATE 10-7-93

DATE DRAWN	5/27/92
DRAWN BY	Don Mc.
APPROVED BY	
DRAWING NUMBER	B- 03 -B
PROJECT NUMBER	QEIA1097
FIGURE NUMBER	

II(F) - Scaled Site Vicinity Map

EXPLANATION

NOTE :
This drawing is not exact.
For precise dimensions, consult a registered land surveyor or appropriate city plat maps.

PROPERTY LINES

BUILDING OUTLINES

PROPERTY OWNERS

1. PACIFIC ACTIVITIES LIMITED
2. G.I. PROPERTIES
3. HOWARD STEEL COMPANY
4. BURGER KING CORPORATION
5. INTERFOODS INCORPORATED
6. PRIESTER CONSTRUCTION
7. SCHMIDT ROAD COMPANY
8. JOE CELSI
9. RALSTON PURINA COMPANY
10. A.D. HUESING BOTTLING COMPANY
11. CITY OF DAVENPORT
12. RICHARD A. PORTER
13. HENRY LISCHER
14. CLARK OWENS OIL COMPANY
15. DAYLE F. AHRENS
16. JERALDINE LERAS
17. MINNEAPOLIS, ST. PAUL, & PACIFIC RAILROAD COMPANY

SCALE:
0 1"
0 150' 300'

NORTH

ROCKINGHAM ROAD

SCHMIDT ROAD

UST #1
UST #2

2627 Hickory Grove Road
Davenport, IA 52804
Phone (319)386-0888
FAX (319)388-9410

DAHL & ASSOCIATES, INC.
Environmental Consultants, Contractors & Engineers

DAHL STD NO: QEIA1097-B-00-A

SCALED SITE VICINITY MAP
PACIFIC ACTIVITIES LIMITED

DAVENPORT . IOWA

PLOT SCALE 1" = 300'
PLOT DATE 8-18-93
AutoCAD FILE NAME 1097-04A

DATE DRAWN	1/21/93
DRAWN BY	Don Mc.
APPROVED BY	
DRAWING NUMBER	B- 04 -A
PROJECT NUMBER	QEIA1097
FIGURE NUMBER	

III(B) - Soil Boring Logs

SOIL BORING LOG & MONITORING WELL CONSTRUCTION DIAGRAM

DAHL & ASSOCIATES, INC.
Environmental Consultants, Contractors & Engineers

Boring/Well #: TB-1; MW-1	**Project No. & Name:** QEIA1097 PAL/DAVENPORT	**Address:** 626 SCHMIDT ROAD DAVENPORT, IOWA
Boring Depth (Feet) x Diameter (Inches) 16' X 8.625		**Drilling Method** HS
Well Contractor Reg. # CD920005501		**Logged by** D. JOHNSON
Date & Time Start 5/21/92 10:30	**Date & Time End** 5/21/92 12:30	**Ground Surface Elevation (ASL)** 568.36'
		Registration # 9017105
		LUST # 8LTB98

Depth In Feet	Well Construction Details	Blow Count If Applicable	Sample No.	Sample Type*	PID/FID Reading	Rock Formations, Soil, Color and Classifications, Observations (moisture etc.)
-0						
-2		2,2,1,1	1	SS	2	2-3'-Black slag materials. (FILL) 3-4'-Black clay, pastic. (CL)
-4		2,3,4,5	2	SS	1	4-6'-Black clay, plastic. (CL)
-6		3,4,4,3	3	SS		6-8'-No recovery.
-8		1,2,1,2	4	SS	2	8-9'-Fe gray plastic clay. (CL) 9-10'-Green Fe color, silty clay, plastic.
-10		4,6,9,20	5	SS	2	10-12'-Green silty sandy clay, crumbly. Lab sample collected. (CL)
-12		18,31,47, 32	6	SS		12-13'-White limestone fragements. 13-13.5'-Grn silty sandy clay, crumbly. 13.5-14'-Grn shaley clay, stiff. (CL)
-14		27,38,45, 60	7	SS	1	14-15'-Light green silty sandy clay. 15-16'-Olive drab green silty sandy clay. (CL)
-16						
-18						

OBSERVATIONS	**DATE:** 5/21/92	6/30/92	7/31/92	
WATER LEVELS	**LEVEL:** 557.36'	562.06'	564.15	
Static Water Level Symbol ▼	**TIME:** 12:30			

* SS (split spoon) * HS (hollow stem auger)

DNR FORM 542-1392

SOIL BORING LOG & MONITORING WELL CONSTRUCTION DIAGRAM

DAHL & ASSOCIATES, INC.
Environmental Consultants, Contractors & Engineers

Boring/Well #: TB-2	**Project No. & Name:** QEIA1097 PAL/DAVENPORT	**Address:** 626 SCHMIDT ROAD DAVENPORT, IOWA
Boring Depth (Feet) x Diameter (Inches) 12' X 8.625"		**Drilling Method** HS
Well Contractor Reg. # CD920005501		**Logged by** D. JOHNSON
Date & Time Start 5/22/92 8:00	**Date & Time End** 5/22/92 9:00	**Ground Surface Elevation (ASL)** 568.31'	**Registration #** 9017105 / **LUST #** 8LTB98

Depth In Feet	Well Construction Details	Blow Count If Applicable	Sample No.	Sample Type*	PID/FID Reading	Rock Formations, Soil, Color and Classifications, Observations (moisture etc.)
-0						
-2		4,4,6,7	1	SS	7	2-4'-Black soil, clay, silty. (CL)
-4		3,4,5,5	2	SS		4-6'-No recovery.
-6		3,5,5,7	3	SS	10	6-8'-Gray clay, plastic. (CL)
-8		3,3,9,30	4	SS	97	8-9'-Gry/brn clay, plastic. 9-10'-Light grn silty clay, crumbly (CL)
-10		22/1	5	SS		10-12'-No recovery.
-12		28/3	6	SS	7	12-14'-Light brown/green shaly hard clay. (CL)
-14						
-16						
-18						

OBSERVATIONS	**DATE:** 5/22/92			
WATER LEVELS	**LEVEL:** 559.31'			
Static Water Level Symbol ▼	**TIME:** 9:00			

* SS (split spoon) * HS (hollow stem auger)

SOIL BORING LOG & MONITORING WELL CONSTRUCTION DIAGRAM

DAHL & ASSOCIATES, INC.
Environmental Consultants, Contractors & Engineers

Boring/Well #: TB-3	**Project No. & Name:** QEIA1097 PAL/DAVENPORT	**Address:** 626 SCHMIDT ROAD DAVENPORT, IOWA
Boring Depth (Feet) x Diameter (Inches) 10' X 8.625"		**Drilling Method** HS
Well Contractor Reg. # CD920005501		**Logged by** D. JOHNSON
Date & Time Start 5/22/92 (;00	**Date & Time End** 5/22/92 10:00	**Ground Surface Elevation (ASL)** 568.25'	**Registration #** 9017105 / **LUST #** 8LTB98

Depth In Feet	Well Construction Details	Blow Count If Applicable	Sample No.	Sample Type*	PID/FID Reading	Rock Formations, Soil, Color and Classifications, Observations (moisture etc.)
-0						
-2		7,3,3,5	1	SS	7	2-4'-Black clay, slag. (FILL)
-4		2,3,3,4	2	SS	14	4-6'-Gray clay, plastic. (CL)
-6		4,3,4,x	3	SS	8	6-8'-Gray clay, plastic. (CL)
-8		x,x	4	SS		8-10'-Rock. Lab sample collected.
-10						
-12						
-14						
-16						
-18						

OBSERVATIONS	**DATE:** 5/22/92			
WATER LEVELS	**LEVEL:** 559.25'			
Static Water Level Symbol ▼	**TIME:** 10:00			

* SS (split spoon) * HS (hollow stem auger)

SOIL BORING LOG & MONITORING WELL CONSTRUCTION DIAGRAM

DAHL & ASSOCIATES, INC.
Environmental Consultants, Contractors & Engineers

Boring/Well #: TB-4; MW-2	**Project No. & Name:** QEIA1097 PAL/DAVENPORT	**Address:** 626 SCHMIDT ROAD DAVENPORT, IOWA
Boring Depth (Feet) x Diameter (Inches) 10' X 8.625"		**Drilling Method** HS
Well Contractor Reg. # CD920005501		**Logged by** D. JOHNSON
Date & Time Start 5/22/92 10:30	**Date & Time End** 5/22/92 12:00	**Ground Surface Elevation (ASL)** 567.89'	**Registration #** 9017105 / **LUST #** 8LTB98

Depth In Feet	Well Construction Details	Blow Count If Applicable	Sample No.	Sample Type*	PID/FID Reading	Rock Formations, Soil, Color and Classifications, Observations (moisture etc.)
-0						
-2		5,2,2,1	1	SS	8 7	2-3'-Black slag. (FILL) 3-4'-Black clay.
-4		2,3,3,9	2	SS	10	4-6'-Gray clay. (CL)
-6		4,6,6,20	3	SS	7	6-8'-Gray clay. Lab sample collected. (CL)
-8		x	4	SS	9	8-10'-Rock, limestone. Drilled to 8.5'
-10						
-12						
-14						
-16						
-18						

OBSERVATIONS	**DATE:** 5/22/92	6/30/92	7/31/93	
WATER LEVELS	**LEVEL:** 560.89'	561.76'	562.15	
Static Water Level Symbol ▼	**TIME:** 12:05			

* SS (split spoon) * HS (hollow stem auger)

DNR FORM 542-1392

SOIL BORING LOG & MONITORING WELL CONSTRUCTION DIAGRAM

DAHL & ASSOCIATES, INC.
Environmental Consultants, Contractors & Engineers

Boring/Well #: TB-5	**Project No. & Name:** QEIA1097 PAL/DAVENPORT	**Address:** 626 SCHMIDT ROAD DAVENPORT, IOWA
Boring Depth (Feet) x Diameter (Inches) 14' X 8.625"		**Drilling Method** HS
Well Contractor Reg. # CD920005501		**Logged by** D. JOHNSON
Date & Time Start 5/22/92 1:30	**Date & Time End** 5/22/91 2:30	**Ground Surface Elevation (ASL)** 568.43'
		Registration # 9017105
		LUST # 8ltb98

Depth In Feet	Well Construction Details	Blow Count If Applicable	Sample No.	Sample Type*	PID/FID Reading	Rock Formations, Soil, Color and Classifications, Observations (moisture etc.)
-0						
-2		3,3,3,6	1	SS	7	2-4'-Black clay, plastic. (FILL)
-4		3,3,5,6	2	SS	30	4-6'-Black clay, plastic. (CL)
-6		5,7,7,6	3	SS	32	6-8'-Gray clay, odor. Lab sample collected. (CL)
-8		2,2,20,18	4	SS	22 20 16	8-8.5'-Gray clay. (CL) 8.5-9'-Grn/brn crumbly clay, plastic. 9-10'-Green clay, hard.
-10		16,22,24, 38	5	SS	9 14	10-11'-Green clay w/gravel, wet. (CL) 11'12-Green clay, crumbly, shaly. (CL)
-12		16,50/2	6	SS	18 10	12-13'-Green clay w/gravel, wet. (CL) 13-14'-Very noticable light green shaly clay. (CL)
-14						
-16						
-18						

OBSERVATIONS	**DATE:** 5/22/92			
WATER LEVELS	**LEVEL:** 557.43'			
Static Water Level Symbol ▼	**TIME:** 2:30			

* SS (split spoon) * HS (hollow stem auger)

SOIL BORING LOG & MONITORING WELL CONSTRUCTION DIAGRAM

DAHL & ASSOCIATES, INC.
Environmental Consultants, Contractors & Engineers

Boring/Well #: TB-6	**Project No. & Name:** QEIA1097 PAL/DAVENPORT	**Address:** 626 SCHMIDT ROAD DAVENPORT, IOWA
Boring Depth (Feet) x Diameter (Inches) 10' X 8.625"		**Drilling Method** HS
Well Contractor Reg. # CD920005501		**Logged by** A. BARRIONUEVO
Date & Time Start 5/26/92 9:35	**Date & Time End** 5/26/92 10:15	**Ground Surface Elevation (ASL)** 567.40'
		Registration # 9017105
		LUST # 8LTB98

Depth In Feet	Well Construction Details	Blow Count If Applicable	Sample No.	Sample Type*	PID/FID Reading	Rock Formations, Soil, Color and Classifications, Observations (moisture etc.)
-0						0-2'-Gravel, fill.
-2		2,2,2,2	1	SS	5	2-4'-Black silty clay, moist, no odor. (CL)
-4		3,5,6,6	2	SS	5	4-6'-Black/gray silty clay, moist, no odor. (CL)
-6		6,5,6,30/2	3	SS	5	6-8'-Black/gray silty clay w/some gravel, water @ 6.5', no odor. Lab sample collected. (CL)
-8			4	SS	5	8-10'-Limestone, could not advance spoon. EOB @ 8.5'
-10						
-12						
-14						
-16						
-18						

OBSERVATIONS	**DATE:** 5/26/92			
WATER LEVELS	**LEVEL:** 560.90'			
Static Water Level Symbol ▼	**TIME:** 10:15			

* SS (split spoon) * HS (hollow stem auger)

DNR FORM 542-1392

SOIL BORING LOG & MONITORING WELL CONSTRUCTION DIAGRAM

DAHL & ASSOCIATES, INC.
Environmental Consultants, Contractors & Engineers

Boring/Well #: TB-7	**Project No. & Name:** QEIA1097 PAL/DAVENPORT	**Address:** 626 SCHMIDT ROAD DAVENPORT, IOWA
Boring Depth (Feet) x Diameter (inches) 7.5' X 8.625"		**Drilling Method** HS
Well Contractor Reg. # CD920005501		**Logged by** A. BARRIONUEVO
Date & Time Start 5/26/92 10:30	**Date & Time End** 5/26/92 11:15	**Ground Surface Elevation (ASL)** 567.38'
		Registration # 9017105
		LUST # 8LTB98

Depth In Feet	Well Construction Details	Blow Count If Applicable	Sample No.	Sample Type*	PID/FID Reading	Rock Formations, Soil, Color and Classifications, Observations (moisture etc.)
-0						0-2'-Gravel, fill.
-2		2,3,2,2	1	SS	2	2-4'-Black clay, moist, some odor. (CL)
-4		3,4,5,5	2	SS	5	4-6'-Gray clay, very moist, no odor. Lab sample collected. (CL)
-6		15/1.5'	3	SS	5	6-8'-Limestone, water @ 6', no odor. EOB @ 7.5'
-8						
-10						
-12						
-14						
-16						
-18						

OBSERVATIONS	**DATE:** 5/26/92			
WATER LEVELS	**LEVEL:** 561.38'			
Static Water Level Symbol ▼	**TIME:** 11:15			

* SS (split spoon) * HS (hollow stem auger)

SOIL BORING LOG & MONITORING WELL CONSTRUCTION DIAGRAM

DAHL & ASSOCIATES, INC.
Environmental Consultants, Contractors & Engineers

Boring/Well #: TB-8	**Project No. & Name:** QEIA1097 PAL/DAVENPORT	**Address:** 626 SCHMIDT ROAD DAVENPORT, IOWA
Boring Depth (Feet) x Diameter (Inches) 8' X 8.625"		**Drilling Method** HS
Well Contractor Reg. # CD920005501		**Logged by** A. BARRIONUEVO
Date & Time Start 5/26/92 1:00	**Date & Time End** 5/26/92 2:00	**Ground Surface Elevation (ASL)** 567.47'
		Registration # 9017105
		LUST # 8LTB98

Depth In Feet	Well Construction Details	Blow Count If Applicable	Sample No.	Sample Type*	PID/FID Reading	Rock Formations, Soil, Color and Classifications, Observations (moisture etc.)
-0						0-2'-Gravel, fill.
-2		2,3,7,4	1	SS	6	2-4'-Black clay, moist, no odor. (CL)
-4		3,4,6,7	2	SS	30	4-6'-Blue/gray clay, moist, odor. (CL)
-6		6,7,9,23/2	3	SS	43	6-8'-Blue/gray clay w/product sheen on sample. Water @ 7.5'. Lab sample collected.
-8		20/1	4	SS	8	8-10'-Limestone, could not advance spoon. EOB @ 8'.
-10						
-12						
-14						
-16						
-18						

OBSERVATIONS	**DATE:** 5/26/92			
WATER LEVELS	**LEVEL:** 560.47'			
Static Water Level Symbol ▼	**TIME:** 2:00			

* SS (split spoon) * HS (hollow stem auger)

DNR FORM 542-1392

SOIL BORING LOG & MONITORING WELL CONSTRUCTION DIAGRAM

DAHL & ASSOCIATES, INC.
Environmental Consultants, Contractors & Engineers

Boring/Well #: TB-9; MW-3	**Project No. & Name:** QEIA1097 PAL/DAVENPORT	**Address:** 626 SCHMIDT ROAD DAVENPORT, IOWA
Boring Depth (Feet) x Diameter (Inches) 12' X 8.625"		**Drilling Method** HS
Well Contractor Reg. # CD920005501		**Logged by** A. BARRIONUEVO

Date & Time Start 5/26/92 2:15	**Date & Time End** 5/26/92 3:30	**Ground Surface Elevation (ASL)** 567.51'	**Registration #** 9017105
			LUST # 8LTB98

Depth In Feet	Well Construction Details	Blow Count If Applicable	Sample No.	Sample Type*	PID/FID Reading	Rock Formations, Soil, Color and Classifications, Observations (moisture etc.)
-0						0-2'-Gravel, fill.
-2		2,4,6,7	1	SS	8	2-4'-Black fill, slag w/clay, moist, no odor. (FILL)
-4		3,3,4,5	2	SS		4-6'-No recovery.
-6		4,4,5,20	3	SS	66	6-8'-Blue/gray clay coated w/product sheen, strong odor, very moist. Lab sample collected. (CL)
-8		5,7,4,3	4	SS	8	8-10'-Gray clay, water @ 8', strong odor. (CL)
-10		3,3,6,18	5	SS	16	10-11'-Same as above. (CL) 11-12'-Light gray silt, moist, no odor. (ML
-12						EOB @ 12'. MW-3 set @ 12'.
-14						
-16						
-18						

OBSERVATIONS	**DATE:** 5/26/92	6/30/92	7/31/92	
WATER LEVELS	**LEVEL:** 559.51'	561.61'	564.44'	
Static Water Level Symbol ▼	**TIME:** 3:30			

* SS (split spoon) * HS (hollow stem auger)

DNR FORM 542-1392

SOIL BORING LOG & MONITORING WELL CONSTRUCTION DIAGRAM

DAHL & ASSOCIATES, INC.
Environmental Consultants, Contractors & Engineers

Boring/Well #: TB-10	**Project No. & Name:** QEIA1097 PAL/DAVENPORT	**Address:** 626 SCHMIDT ROAD DAVENPORT, IOWA
Boring Depth (Feet) x Diameter (Inches) 9' X 8.625"		**Drilling Method** HS
Well Contractor Reg. # CD920005501		**Logged by** A. BARRIONUEVO
Date & Time Start 5/26/92 3:30	**Date & Time End** 5/26/92 4:15	**Ground Surface Elevation (ASL)** 567.77'
		Registration # 9017105
		LUST # 8LTB98

Depth In Feet	Well Construction Details	Blow Count If Applicable	Sample No.	Sample Type*	PID/FID Reading	Rock Formations, Soil, Color and Classifications, Observations (moisture etc.)
-0						
-2		2,1,1,1	1	SS	7	2-4'-Black clay, moist, no odor. (CL)
-4		2,3,4,5	2	SS	62	4-6'-Black/gray clay, very moist, strong odor. (CL)
-6		3,5,5,40/3	3	SS	48	6-8'-Blk/gry clay, product sheen on sample, v. moist, strong odor. Water @ 7.5'. Lab sample collected. (CL)
-8		50/4	4	SS	36	8-10'-Black clay w/limestone, moist, odor. (CL) EOB @ 9'.
-10						
-12						
-14						
-16						
-18						

OBSERVATIONS	**DATE:** 5/26/92			
WATER LEVELS	**LEVEL:** 560.27'			
Static Water Level Symbol ▼	**TIME:** 4:15			

* SS (split spoon) * HS (hollow stem auger)

SOIL BORING LOG & MONITORING WELL CONSTRUCTION DIAGRAM

DAHL & ASSOCIATES, INC.
Environmental Consultants, Contractors & Engineers

Boring/Well #: TB-16	**Project No. & Name:** QEIA1097 PAL/DAVENPORT	**Address:** 626 SCHMIDT ROAD DAVENPORT, IOWA
Boring Depth (Feet) x Diameter (Inches) 8' X 8.625"		**Drilling Method** HS
Well Contractor Reg. # CD920005501		**Logged by** D. JOHNSON
Date & Time Start 7/15/92 11:00	**Date & Time End** 7/15/92 12:30	**Ground Surface Elevation (ASL)** 567.20'
		Registration # 9017105
		LUST # 8LTB98

Depth In Feet	Well Construction Details	Blow Count If Applicable	Sample No.	Sample Type*	PID/FID Reading	Rock Formations, Soil, Color and Classifications, Observations (moisture etc.)
-0						0-2'-Gravel. (FILL)
-2		2,1,1,2	1	SS	0	2-3'-Slag. (FILL) 3-4'-Blay clay. (CL)
-4		1,2,3,5	2	SS	25	4-6'-Black moist clay. (CL)
-6		3,5,6,6	3	SS	10	6-8'-Gray moist clay. Limestone @ 8'. Lab sample collected. (CL) EOB @ 8.0'.
-8						
-10						
-12						
-14						
-16						
-18						

OBSERVATIONS	**DATE:** 7/15/92			
WATER LEVELS	**LEVEL:** 560.20'			
Static Water Level Symbol ▼	**TIME:** 12:30			

* SS (split spoon) * HS (hollow stem auger)

DNR FORM 542-1392

XIV (B3) - Monitoring Plan

NORTH

SCALE: 0 15' 30' 1"

EXPLANATION

NOTE :
This drawing (including property lines, structures, and locations of buried utilities) is not exact. For precise locations, consult a registered land surveyor and appropriate utility companies.

TANK #	SIZE	CONTENTS
1	300 Gal	GASOLINE
2	560 Gal	GASOLINE

—OE—	OVERHEAD ELECTRIC
—UE—	UNDERGROUND ELECTRIC
—OG—	OVERHEAD PROCESS GAS
—W1—	DOMESTIC WATER
—W—	CITY WATER (DICONNECTED)
—X—	TRENCH w/ MISCELL.
▲	EXISTING MONITORING WELL
⊕ TB-	DAHL TEST BORING
⊙ MW-	DAHL MONITORING WELL

MW-1 TB-1
UST #1
PUMP
PUMP
MANHOLE
MW-2 TB-4
TB-3
TB-2
MW-5
MW-9 TB-24
TB-6
TB-5
HYDRANT
CUT & CAPPED 11-10-89
TB-7
UST #2
TB-8
TB-10
MW-3 TB-9
TB-16

CONDUIT SURVEY
GROUNDWATER BARRIER SURVEY

2627 Hickory Grove Road
Davenport, IA 52804
Phone (319)388-0888
FAX (319)388-9410

DAHL & ASSOCIATES, INC.
Environmental Consultants, Contractors & Engineers

DAHL STD NO: QEIA1097-B-00-A

RECEPTOR SURVEY MAP

PACIFIC ACTIVITIES LIMITED

DAVENPORT, IOWA

PLOT DATE 10-7-93
AutoCAD FILE NAME 1097-03A
PLOT SCALE 1"=30'

DATE DRAWN	5/27/92
DRAWN BY	Don Mc.
APPROVED BY	
DRAWING NUMBER	B- 03 -B
PROJECT NUMBER	QEIA1097
FIGURE NUMBER	

Monitoring Plan

Groundwater: No contamination of the groundwater by gasoline has been detected at this site. Long term monitoring of the site groundwater would not be productive and is not recommended. The first unconfined groundwater aquifer will likely never be used for a public or private water supply due to the industrial nature of the LUST site area and the readily available water from the City of Davenport water system. DAHL recommends a low risk classification with no groundwater monitoring.

Soil: The area of soil contamination is well defined and limited to the area of the former UST basins, with a small area extending under the southeast corner of the building adjacent to UST #1 basin. With the source of contamination removed, no additional spread of soil contamination is expected. Periodic monitoring of the soil would not be productive, and is not recommended. If closure of the site is requested, additional samples can be collected at that time to document the residual levels of gasoline contamination in the soil. DAHL recommends a Low Risk classification with no periodic monitoring of the soil.

No USTs remain at this site. UST management practice is not applicable.

XV (B2) - Best Managment Practice

has been detected. **No Risk.**

A12 No groundwater contamination above action levels for OA-1 components has been detected at this site. No migration of contaminants is possible. **No Risk.**

A13 Although the site is within 1000 feet of three water wells, no gasoline contamination of the groundwater has been detected at this site, so no impact to the water supply is expected (see also answer A7). **No Risk.**

A14 The groundwater at this site could be classified as a protected groundwater source (see answer A8). Even so, there is no apparent risk of the groundwater being impacted by the contaminated soil as indicated by the lack of gasoline contamination in the groundwater, as determined by laboratory analysis. **Low Risk.**

B1) Soil contamination above 100 mg/kg exists at this site, but no high risk factors are present. Due to the lack of hydrocarbon impact to the groundwater, a Low Risk, no monitoring classification is being recommended for this site.

B2) High Risk conditions 7,9, and 14 exist at this site, but a Low Risk classification has been justified for each risk factor (See answers A7, A9, and A14 above). Due to the lack of hydrocarbon impact to the groundwater, a Low Risk, no monitoring classification is being recommended for this site.

Site Risk Classification Justifications

High Risk Conditions

A1 One structure lies within the soil contamination plume, but this building is not occupied and no hydrocarbon odors have been reported. Even so, all accessible confined spaces in and around the building were screened using a Photoionization Detector (PID) calibrated to isobutylene (a benzene equivalent). No readings exceeding 10 ppm were recorded. The Threshold Limit Value-Time Weighted Average (TLV-TWA) for benzene in those structures is not likely to exceed 10 parts per million for more than 8 hours per day. **No Risk.**

A2 All accessible confined spaces were screened using a Combustible Gas Indicator. No readings exceeding 10% of the LEL were recorded. The concentration of combustible gases in structures, basements, crawl spaces, utility conduits, storm or sanitary sewers, vaults or any other confined space does not exceed, and is not likely to exceed, 10% of the Lower Explosive Limit (LEL). **No Risk.**

A3 No surface water-bodies were identified within 1000 feet of the UST basins, and no contamination of the groundwater above action levels has been detected. No hydrologic connection between surface water and the UST basin area is expected. **No Risk.**

A4 No PVC drinking water lines were identified within 200 feet of the UST basins. The municipal water supply to this property was cut and capped in November of 1989. **No Risk.**

A5 No utility trenches intersect the area of gasoline impacted soil associated with the UST systems. No impact to utilities is possible. Contamination exceeding corrective action levels of utility trenches is not likely. **No Risk.**

A6 No utility trenches intersect the area of gasoline impacted soil associated with the UST systems. Damage to utility conduits or structures by gasoline contaminated soil from the former UST system is not possible. **No Risk.**

A7 Two active and one inactive water wells were identified to be lying within 1000 feet of the former UST basins. The areas of gasoline impacted soil exceeding 100 mg/kg total hydrocarbons as gasoline do not intersect the well surface structure so direct contamination of the wells is not possible. The sources of the gasoline at the UST site have been removed, so no additional spread of contamination is possible. No contamination of the groundwater wells by gasoline impacted soil is expected. **No Risk.**

A8 The hydraulic conductivity tests done on wells at this site indicate that the groundwater could be classified as a protected groundwater source. The wells tested are screened at least partially in the slag fill material that makes up the first 2 to 4 feet of the soil at this site. This construction was necessary to allow proper sampling of the site groundwater, but the resulting hydraulic conductivities calculated are not representative of the native clay soil. Even though the groundwater at this site could be classified as a protected groundwater source based on the tests done, the absence of impacted groundwater eliminates this risk factor. Without contaminated groundwater, the hydraulic conductivity of the groundwater at this site is not relevant. **No Risk.**

A9 Area water-well logs indicate the presence of fractured or karstic limestone bedrock beneath the geographic area of the removed USTs. Even so, the lack of hydrocarbon impact to groundwater (as determined by laboratory testing) and the limited area of gasoline impacted soil in the former UST basins effectively eliminates any risk related to the fractured bedrock. Vertical migration of contaminants is limited by the static water level, which is in the soil layers above the bedrock, and by the clay layer that directly overlies the bedrock. **No Risk.**

A10 No groundwater contamination above action levels for OA-1 components has been detected at this site. No impact to nearby public or private water supplies should be expected. **No Risk.**

A11 No groundwater contamination above action levels for OA-1 components has been detected at this site. The groundwater at this site qualifies as a protected groundwater source, but no impact to the groundwater source

XIII - Site Risk Classification Justification

NATIONAL ENVIRONMENTAL® TESTING, INC.

Cedar Falls Division
704 Enterprise Drive
Cedar Falls, IA 50613
Tel: (319) 277-2401
Fax: (319) 277-2425

ANALYTICAL REPORT

Sally Shake
DAHL & ASSOCIATES, INC.
2627 Hickory Grove Road
Davenport, IA 52804

(319)388-0888

08/13/1992

NET Job Number: 92.6163

NET Sample Number: 178822

Collected by: Quass/Shake

Collectors Phone No.: 319/388-0888

Job Description: PROJECT #QEIA-1097

Date Taken: 07/31/1992

Date Received: 08/01/1992

Sample ID: Field Blank P.A.L./Davenport

Analyte	Result	Units	Result Flag	Analyst	Date Analyzed	Method	Reporting Limit	Matrix
VOLATILES - BTEX (WATER)								Water
Benzene	<2.0	ug/L		djl	08/11/1992	S-8015/IA-OA1	2.0 ug/L	Water
Ethylbenzene	<2.0	ug/L		djl	08/11/1992	S-8015/IA-OA1	2.0 ug/L	Water
Toluene	<2.0	ug/L		djl	08/11/1992	S-8015/IA-OA1	2.0 ug/L	Water
Xylenes, Total	<2.0	ug/L		djl	08/11/1992	S-8015/IA-OA1	2.0 ug/L	Water
Total Hydrocarbons	<0.10	mg/L		djl	08/11/1992	S-8015/IA-OA1	0.10 mg/L	Water

Key to Flags: D = Chromatogram does not match gasoline (OA-1 only)
B = Blank hit for this compound
All Results are calculated on a wet weight basis.
Reporting Limts are extremely matrix dependent and may not always be achievable
Units: mg/L = ppm ug/g = mg/kg = ppm ug/L = ppb

R. L. Bindert
Project Manager

NATIONAL ENVIRONMENTAL TESTING, INC.

Cedar Falls Division
704 Enterprise Drive
Cedar Falls, IA 50613
Tel: (319) 277-2401
Fax: (319) 277-2425

CHAIN OF CUSTODY

Client Dahl & Associates, Inc.	Project Name P.A.L. / Davenport GEIA1097 P.O. # 0839
Send Report to: Sally Shake	
Address 2621 Hickory Grove Rd. Davenport, IA 52804 Telephone # (319) 388-0888	Collected by: Kevin Quass / Sally Shake

Collection Information								Parameters														
Sample ID	Sampling Location	Date	Time	GRAB	COMP	Sample Type	No. of Containers	OA-1														
MW-6		7/31/92	3:45p	X		H_2O	3	X														
MW-7		7/31/92	2:40p	X		H_2O	3	X														
MW-8		7/31/92	1:50	X		H_2O	3	X														
MW-9		7/31/92	1:00	X		H_2O	3	X														
Field Blank		7/31/92	2:55p	X		H_2O	3	X														

Remarks:

Relinquished by:	Date	Time	Received by:	Date	Time
Sally Shake	7/31/92	5:25p	John E. Brack	7-31-92	17:25

Shipping Notes/Lab Comments

Received for NET Midwest by: Melissa Deacam 8/1/92 8:00

Samples Field Filtered: ___ Yes ___ No
Seals Intact Upon Receipt: ___ Yes ___ No ___ N/A

NATIONAL ENVIRONMENTAL TESTING, INC.

Cedar Falls Division
704 Enterprise Drive
Cedar Falls, IA 50613
Tel: (319) 277-2401
Fax: (319) 277-2425

ANALYTICAL REPORT

Dan Flaig/Sally Shake
DAHL & ASSOCIATES, INC.
2627 Hickory Grove Road
Davenport, IA 52804

(319)388-0888

07/21/1992

NET Job Number: 92.5263

NET Sample Number: 175291

Collected by: Fred Remley

Collectors Phone No.: 319/388-0888

Job Description: PROJECT #QEIA-1097

Date Taken: 06/30/1992

Date Received: 07/01/1992

Sample ID: MW #3 PAL

Analyte	Result	Units	Result Flag	Analyst	Date Analyzed	Method	Reporting Limit	Matrix
VOLATILES - BTEX (WATER)								Water
Benzene	<2.0	ug/L		djl	07/15/1992	S-8015/IA-OA1	2.0 ug/L	Water
Ethylbenzene	<2.0	ug/L		djl	07/15/1992	S-8015/IA-OA1	2.0 ug/L	Water
Toluene	<2.0	ug/L		djl	07/15/1992	S-8015/IA-OA1	2.0 ug/L	Water
Xylenes, Total	<2.0	ug/L		djl	07/15/1992	S-8015/IA-OA1	2.0 ug/L	Water
Total Hydrocarbons	<0.10	mg/L		djl	07/15/1992	S-8015/IA-OA1	0.10 mg/L	Water

Key to Flags: D = Chromatogram does not match gasoline (OA-1 only)

All Results are calculated on a wet weight basis.
Reporting Limts are extremely matrix dependent and may not always be achievable
Units: mg/L = ppm ug/g = mg/kg = ppm ug/L = ppb

R. L. Bindert
Project Manager

NATIONAL ENVIRONMENTAL TESTING, INC.

Cedar Falls Division
704 Enterprise Drive
Cedar Falls, IA 50613
Tel: (319) 277-2401
Fax: (319) 277-2425

ANALYTICAL REPORT

Dan Flaig/Sally Shake
DAHL & ASSOCIATES, INC.
2627 Hickory Grove Road
Davenport, IA 52804

(319)388-0888

07/21/1992

NET Job Number: 92.5263

NET Sample Number: 175293

Collected by: Fred Reasley

Collectors Phone No.: 319/388-0888

Job Description: PROJECT #0EIA-1097

Date Taken: 06/30/1992

Date Received: 07/01/1992

Sample ID: MW #5 PAL

Analyte	Result	Units	Result Flag	Analyst	Date Analyzed	Method	Reporting Limit	Matrix
VOLATILES - BTEX (WATER)								Water
Benzene	<5.	ug/L		djl	07/12/1992	S-8015/IA-OA1	2.0 ug/L	Water
Ethylbenzene	<10.	ug/L		djl	07/12/1992	S-8015/IA-OA1	2.0 ug/L	Water
Toluene	<10.	ug/L		djl	07/12/1992	S-8015/IA-OA1	2.0 ug/L	Water
Xylenes, Total	<10.	ug/L		djl	07/12/1992	S-8015/IA-OA1	2.0 ug/L	Water
Total Hydrocarbons	0.66	mg/L	d	djl	07/12/1992	S-8015/IA-OA1	0.10 mg/L	Water

NOTE: High reporting limits due to hydrocarbon interference.

Key to Flags: D = Chromatogram does not match gasoline (OA-1 only)

All Results are calculated on a wet weight basis.
Reporting Limts are extremely matrix dependant and may not always be achievable
Units: mg/L = ppm ug/g = mg/kg = ppm ug/L = ppb

R. L. Bindert
Project Manager

NET NATIONAL ENVIRONMENTAL TESTING, INC.
NET Midwest, Inc.
Cedar Falls Division
704 Enterprise Drive
P.O. Box 625
Cedar Falls, IA 50613
Tel: (319) 277-2401
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COPY

ANALYTICAL REPORT

RECEIVED
JUL 9 1992
Sally

Dan Flaig/Sally Shake
DAHL & ASSOCIATES, INC.
2627 Hickory Grove Road
Davenport, IA 52804

07/07/1992

PROJECT #QEIA-1097

Date Taken: SEE BELOW
Job Number: 92.5264

Date Received: 07/01/1992

175294	MW #1 PAL		06/30/1992
Solids, Dissolved		720.	mg/L

TDS MW-1

Cheryl L. Wilson
Project Manager

NET NATIONAL ENVIRONMENTAL TESTING, INC.

NET Midwest, Inc.
Cedar Falls Division
704 Enterprise Drive
P.O. Box 625
Cedar Falls, IA 50613
Tel: (319) 277-2401
Fax: (319) 277-2425

CHAIN OF CUSTODY

Client	Project Name
Send Report to:	
Address	Collected by:
Telephone #	

Collection Information								Parameters																		
Sample ID	Sampling Location	Date	Time	G R A B	C O M P	Sample Type	No. of Container		BTEX	TPS																
MW 0		10/30	9:00	/		W	3		/																	
MW 1		10/30	9:30	/		W	3		/																	
MW 2		10/30	10:00	/		W	3		/																	
MW 3		10/30	10:20	/		W	3		/																	
MW 4		10/30	11:00	/		W	3		/																	
MW 5		10/30	11:30	/		W	3		/																	
MW 1		10/30	9:30	/		W	1			/																

Remarks:

Relinquished by:	Date	Time	Received by:	Date	Time

Shipping Notes/Lab Comments

Received for NET Midwest by:

Samples Field Filtered: ___ Yes ___ No
Seals Intact Upon Receipt: ___ Yes ___ No ___ N/A

NET NATIONAL ENVIRONMENTAL TESTING, INC.

NET Midwest, Inc.
Cedar Falls Division
704 Enterprise Drive
P.O. Box 625
Cedar Falls, IA 50613
Tel: (319) 277-2401
Fax: (319) 277-2425

CHAIN OF CUSTODY

Client Dahl & Associates Inc	Project Name PAL QEIA097
Send Report to: Dan Flaig / Sally Shultz	
Address 3627 Hickory Glen Road Davenport, Iowa 52804	Collected by: Fred Remley 6/30/92
Telephone # 319/388-0888	

Collection Information								Parameters															
Sample ID	Sampling Location	Date	Time	GRAB	COMP	Sample Type	No. of Containers		BTEX	TPH													
MW#0		6/30	9:00	/		W	3		/														
MW#1		6/30	9:30	/		W	3		/														
MW#2		6/30	10:00	/		W	3		/														
MW#3		6/30	10:30	/		W	3		/														
MW#4		6/30	11:00	/		W	3		/														
MW#5		6/30	11:30	/		W	3		/														
MW#1		6/30	9:30	/		W	1			/													

Remarks: PO#8809

Relinquished by:	Date	Time	Received by:	Date	Time
	6/30	345		6/30-92	3:45P

Shipping Notes/Lab Comments

Received for NET Midwest by: 7/1/92 8:50

Samples Field Filtered: ___ Yes ___ No
Seals Intact Upon Receipt: ___ Yes ___ No ___ N/A

NATIONAL ENVIRONMENTAL TESTING, INC.

Cedar Falls Division
704 Enterprise Drive
Cedar Falls, IA 50613
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ANALYTICAL REPORT

Sally Shake
DAHL & ASSOCIATES, INC.
2627 Hickory Grove Road
Davenport, IA 52804

(319)388-0888

08/13/1992

NET Job Number: 92.6163

NET Sample Number: 178821

Collected by: Guass/Shake

Collectors Phone No.: 319/388-0888

Job Description: PROJECT #QEIA-1097

Date Taken: 07/31/1992

Date Received: 08/01/1992

Sample ID: MW-9 P.A.L./Davenport

Analyte	Result	Units	Result Flag	Analyst	Date Analyzed	Method	Reporting Limit	Matrix
VOLATILES - BTEX (WATER)								Water
Benzene	<2.0	ug/L		djl	08/11/1992	S-8015/IA-OA1	2.0 ug/L	Water
Ethylbenzene	<2.0	ug/L		djl	08/11/1992	S-8015/IA-OA1	2.0 ug/L	Water
Toluene	<2.0	ug/L		djl	08/11/1992	S-8015/IA-OA1	2.0 ug/L	Water
Xylenes, Total	<2.0	ug/L		djl	08/11/1992	S-8015/IA-OA1	2.0 ug/L	Water
Total Hydrocarbons	<0.10	mg/L		djl	08/11/1992	S-8015/IA-OA1	0.10 mg/L	Water

Key to Flags: D = Chromatogram does not match gasoline (OA-1 only)
B = Blank hit for this compound
All Results are calculated on a wet weight basis.
Reporting Limts are extremely matrix dependent and may not always be achievable
Units: mg/L = ppm ug/g = mg/kg = ppm ug/L = ppb

R. L. Bindert
Project Manager

NATIONAL ENVIRONMENTAL TESTING, INC.

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ANALYTICAL REPORT

Dan Flaig/Sally Shake
DAHL & ASSOCIATES, INC.
2627 Hickory Grove Road
Davenport, IA 52804

(319)388-0888

07/21/1992

NET Job Number: 92.5263

NET Sample Number: 175289

Collected by: Fred Remley

Collectors Phone No.: 319/388-0888

Job Description: PROJECT #QEIA-1097

Date Taken: 06/30/1992

Sample ID: MW #1 PAL

Date Received: 07/01/1992

Analyte	Result	Units	Result Flag	Analyst	Date Analyzed	Method	Reporting Limit	Matrix
VOLATILES - BTEX (WATER)								Water
Benzene	<2.0	ug/L		djl	07/12/1992	S-8015/IA-OA1	2.0 ug/L	Water
Ethylbenzene	<2.0	ug/L		djl	07/12/1992	S-8015/IA-OA1	2.0 ug/L	Water
Toluene	<2.0	ug/L		djl	07/12/1992	S-8015/IA-OA1	2.0 ug/L	Water
Xylenes, Total	<2.0	ug/L		djl	07/12/1992	S-8015/IA-OA1	2.0 ug/L	Water
Total Hydrocarbons	<0.10	mg/L		djl	07/12/1992	S-8015/IA-OA1	0.10 mg/L	Water

Key to Flags: D = Chromatogram does not match gasoline (OA-1 only)

All Results are calculated on a wet weight basis.
Reporting Limts are extremely matrix dependent and may not always be achievable
Units: mg/L = ppm ug/g = mg/kg = ppm ug/L = ppb

R. L. Bindert
Project Manager

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ANALYTICAL REPORT

Dan Flaig/Sally Shake
DAHL & ASSOCIATES, INC.
2627 Hickory Grove Road
Davenport, IA 52804

(319)388-0888

07/21/1992

NET Job Number: 92.5263

NET Sample Number: 175290

Collected by: Fred Realey

Collectors Phone No.: 319/388-0888

Job Description: PROJECT #0EIA-1097

Date Taken: 06/30/1992

Date Received: 07/01/1992

Sample ID: MW #2 PAL

Analyte	Result	Units	Result Flag	Analyst	Date Analyzed	Method	Reporting Limit	Matrix
VOLATILES - BTEX (WATER)								Water
Benzene	<2.0	ug/L		djl	07/12/1992	S-8015/IA-OA1	2.0 ug/L	Water
Ethylbenzene	<2.0	ug/L		djl	07/12/1992	S-8015/IA-OA1	2.0 ug/L	Water
Toluene	<2.0	ug/L		djl	07/12/1992	S-8015/IA-OA1	2.0 ug/L	Water
Xylenes, Total	<2.0	ug/L		djl	07/12/1992	S-8015/IA-OA1	2.0 ug/L	Water
Total Hydrocarbons	<0.10	mg/L		djl	07/12/1992	S-8015/IA-OA1	0.10 mg/L	Water

Key to Flags: D = Chromatogram does not match gasoline (OA-1 only)

All Results are calculated on a wet weight basis.
Reporting Limts are extremely matrix dependant and may not always be achievable
Units: mg/L = ppm ug/g = mg/kg = ppm ug/L = ppb

R. L. Bindert
Project Manager

NET NATIONAL ENVIRONMENTAL TESTING, INC.

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704 Enterprise Drive
P.O. Box 625
Cedar Falls, IA 50613
Tel: (319) 277-2401
Fax: (319) 277-2425

CHAIN OF CUSTODY

Client Dahl & Associates, Inc.	Project Name P.A.L. / Davenport QEIA1097
Send Report to: Sally Shake	
Address 2627 Hickory Grove Rd. Davenport, IA 52804	Collected by: Doug Johnson PO # 0825
Telephone # (319) 388-0888	

Collection Information								Parameters													
Sample ID	Sampling Location	Date	Time	GRAB	COMP	Sample Type	No. of Container	OA-1 & OA-2 combined													
TB-21A	6-8'	7/17/92	AM	X		Soil	1	X													
TB-22	4-6'	7/17/92	PM	X		Soil	1	X													
TB-23	6-8'	7/17/92	PM	X		Soil	1	X													
TB-24	8-10'	7/20/92	AM	X		Soil	1	X													

Remarks: _____

Relinquished by:	Date	Time	Received by:	Date	Time
Cindy Hazard	7/21/92	3:45	Steven K. Simon	07-21-92	3:35
Eddie Fite	7-22-92	9:30	Melene Staccini	7/23/92	9:45

Shipping Notes/Lab Comments
Relinquished by: Lori Leonhard 7/22
Received by: _____

Received for NET Midwest by: Lori Leonhard 7/24/92 0930

Samples Field Filtered: ___ Yes ___ No
Seals Intact Upon Receipt: ___ Yes ___ No ___ N/A

Sally

NATIONAL ENVIRONMENTAL® TESTING, INC.

Cedar Falls Division
704 Enterprise Drive
Cedar Falls, IA 50613
Tel: (319) 277-2401
Fax: (319) 277-2425

RECEIVED
JUL 23 1992

ANALYTICAL REPORT

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07/21/1992

Dan Flaig/Sally Shake
DAHL & ASSOCIATES, INC.
2627 Hickory Grove Road
Davenport, IA 52804

(319)388-0888

NET Job Number: 92.5263

NET Sample Number: 175288

Collected by: Fred Remley

Collectors Phone No.: 319/388-0888

Job Description: PROJECT #9EIA-1097

Date Taken: 06/30/1992

Date Received: 07/01/1992

Sample ID: MW #0 PAL

Analyte	Result	Units	Result Flag	Analyst	Date Analyzed	Method	Reporting Limit	Matrix
VOLATILES - BTEX (WATER)								Water
Benzene	<2.0	ug/L		djl	07/15/1992	S-8015/IA-QA1	2.0 ug/L	Water
Ethylbenzene	<2.0	ug/L		djl	07/15/1992	S-8015/IA-QA1	2.0 ug/L	Water
Toluene	<2.0	ug/L		djl	07/15/1992	S-8015/IA-QA1	2.0 ug/L	Water
Xylenes, Total	2.0	ug/L		djl	07/15/1992	S-8015/IA-QA1	2.0 ug/L	Water
Total Hydrocarbons	<0.10	mg/L		djl	07/15/1992	S-8015/IA-QA1	0.10 mg/L	Water

Key to Flags: D = Chromatogram does not match gasoline (QA-1 only)

All Results are calculated on a wet weight basis.
Reporting Limits are extremely matrix dependent and may not always be achievable
Units: mg/L = ppm ug/g = mg/kg = ppm ug/L = ppb

R. L. Bindert
R. L. Bindert
Project Manager

NET NATIONAL ENVIRONMENTAL TESTING, INC.

NET Midwest, Inc.
Cedar Falls Division
704 Enterprise Drive
P.O. Box 625
Cedar Falls, IA 50613
Tel: (319) 277-2401
Fax: (319) 277-2425

CHAIN OF CUSTODY

Client Dahl & Associates, Inc.	Project Name P.A.L. / Davenport QEIA1097 (P.O. # 05601)
Send Report to: Sally Shake / Dan Flaig	
Address 2627 Hickory Grove Road Davenport, IA 52804	Collected by: Al Barrionuevo
Telephone # (319) 388-0888	

Collection Information								Parameters															
Sample ID	Sampling Location	Date	Time	GRAB	COMP	Sample Type	No. of Container	combined OA-1 & OA-2															
TB-6	6-8'	5/26/92	AM	X		Soil	1	X															
TB-7	4-6'	5/26/92	AM	X		Soil	1	X															
TB-8	6-8'	5/26/92	AM	X		Soil	1	X															
TB-12	4-6'	5/27/92	PM	X		Soil	1	X															
TB-14	6-8'	5/27/92	PM	X		Soil	1	X															

Remarks:

Relinquished by:	Date	Time	Received by:	Date	Time
Sally Shake	5/28/92	3:45pm	[signature]	05 28	3:45p

Shipping Notes/Lab Comments

Received for NET Midwest by: [signature] 5/29/92

Samples Field Filtered: ___ Yes ___ No
Seals Intact Upon Receipt: ___ Yes ___ No ___ N/A

NET NATIONAL ENVIRONMENTAL TESTING, INC.

NET Midwest, Inc.
Cedar Falls Division
704 Enterprise Drive
P.O. Box 625
Cedar Falls, IA 50613
Tel: (319) 277-2401
Fax: (319) 277-2425

CHAIN OF CUSTODY

Client Dahl & Associates	Project Name P.A.L. / Davenport QEIA1097 P.O. # 0824
Send Report to: Sally Shake	
Address 2627 Hickory Grove Rd. Davenport, IA 52804	Collected by: Doug Johnson
Telephone # (319) 388-0888	

Collection Information								Parameters														
Sample ID	Sampling Location	Date	Time	GRAB	COMP	Sample Type	No. of Containers	OA-1 & OA-2 combined														
TB-15	6-8'	7/15/92	AM	X		Soil	1	X														
TB-16	6-8'	7/15/92	AM	X		Soil	1	X														
TB-17	6-8'	7/15/92	PM	X		Soil	1	X														
TB-18	4-6'	7/15/92	PM	X		Soil	1	X														
TB-20	6-8'	7/15/92	PM	X		Soil	1	X														

Remarks:

Relinquished by:	Date	Time	Received by:	Date	Time
Sally Shake	7/17/92	15:28	Steven L. Omara	07-17-92	3:30

Shipping Notes/Lab Comments

Received for NET Midwest by: Melissa Saccoman 7/18/92 800

Samples Field Filtered: ___ Yes ___ No

Seals Intact Upon Receipt: ___ Yes ___ No ___ N/A

NATIONAL ENVIRONMENTAL TESTING, INC.

Cedar Falls Division
704 Enterprise Drive
Cedar Falls, IA 50613
Tel: (319) 277-2401
Fax: (319) 277-2425

ANALYTICAL REPORT

Dan Flaig
DAHL & ASSOCIATES, INC.
2627 Hickory Grove Road
Davenport, IA 52804

(319)388-0888

10/08/1993

NET Job Number: 92.5881

NET Sample Number: 177697

Collected by: Doug Johnson

Collectors Phone No.: 319/388-0888

Job Description: PROJECT #QEIA-1097

Date Taken: 07/20/1992

Date Received: 07/23/1992

Sample ID: TB-24 8-10' P.A.L./Davenport

Analyte	Result	Units	Result Flag	Analyst	Date Analyzed	Method	Reporting Limit		Matrix
VOLATILES - BTEX (NONAQUEOUS)									Soil
Benzene	<0.5	ug/g		kjt	08/01/1992	S-8015/IA-OA1	0.5	ug/g	Soil
Ethylbenzene	<0.5	ug/g		kjt	08/01/1992	S-8015/IA-OA1	0.5	ug/g	Soil
Toluene	<0.5	ug/g		kjt	08/01/1992	S-8015/IA-OA1	0.5	ug/g	Soil
Xylenes, Total	<0.5	ug/g		kjt	08/01/1992	S-8015/IA-OA1	0.5	ug/g	Soil
Total Hydrocarbons	<10.	ug/g		kjt	08/01/1992	S-8015/IA-OA1	10	ug/g	Soil

All results are calculated on a wet weight basis.
Reporting Limits are extremely matrix dependent and may not always be achievable.
Key to Flags: D = Chromatogram does not match gasoline (OA-1 only) B = Blank hit for this compound
Units: mg/L = ppm ug/g = mg/kg = ppm ug/L = ppb

R. L. Bindert
Operations Manager

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Cedar Falls, IA 50613
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CHAIN OF CUSTODY

Client Dahl & Associates, Inc.	Project Name P.A.L. / Davenport QEIA1097 (P.O. # 0559)
Send Report to: Sally Shake / Dan Flaig	
Address 2627 Hickory Grove Road Davenport, IA 52804 Telephone # (319) 388-0888	Collected by: Doug Johnson

Collection Information								Parameters													
Sample ID	Sampling Location	Date	Time	GRAB	COMP	Sample Type	No. of Containers	Combined CA-1 & CA-2													
TB-1	10-12'	5/21/92	11:30 AM	X		Soil	1	X													
TB-2	8-10'	5/22/92	8:45 AM	X		Soil	1	X													
TB-3	8-10'	5/22/92	9:45 AM	X		Soil	1	X													
TB-4	6-8'	5/22/92	11:30 AM	X		Soil	1	X													
TB-5	6-8'	5/22/92	2:00 PM	X		Soil	1	X													
TB-5a	6-8'	5/22/92	2:00 PM	X		Soil	1	X													

Remarks: _____

Relinquished by:	Date	Time	Received by:	Date	Time
Sally Shake	5/28/92	3:45pm	Steven [illegible]	05-28	3:45

Shipping Notes/Lab Comments

Received for NET Midwest by: Melissa Duncan 5/29/92 8:00

Samples Field Filtered: ___ Yes ___ No
Seals Intact Upon Receipt: ___ Yes ___ No ___ N/A

NATIONAL ENVIRONMENTAL TESTING, INC.

Cedar Falls Division
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ANALYTICAL REPORT

Dan Flaig
DAHL & ASSOCIATES, INC.
2627 Hickory Grove Road
Davenport, IA 52804

(319)388-0888

10/08/1993

NET Job Number: 92.4268

NET Sample Number: 171528

Collected by: Doug Johnson

Collectors Phone No.: 319/388-0888

Job Description: PROJECT #QEIA-1097

Date Taken: 05/22/1992

Date Received: 05/29/1992

Sample ID: TB-5 6-8' P.A.L./Davenport

Analyte	Result	Units	Result Flag	Analyst	Date Analyzed	Method	Reporting Limit		Matrix
VOLATILES - BTEX (NONAQUEOUS)									Soil
Benzene	<0.5	ug/g		bqb	06/04/1992	S-8015/IA-OA1	0.5	ug/g	Soil
Ethylbenzene	<0.5	ug/g		bqb	06/04/1992	S-8015/IA-OA1	0.5	ug/g	Soil
Toluene	<0.5	ug/g		bqb	06/04/1992	S-8015/IA-OA1	0.5	ug/g	Soil
Xylenes, Total	<0.5	ug/g		bqb	06/04/1992	S-8015/IA-OA1	0.5	ug/g	Soil
Total Hydrocarbons	38.	ug/g		bqb	06/04/1992	S-8015/IA-OA1	10	ug/g	Soil

All results are calculated on a wet weight basis.
Reporting Limits are extremely matrix dependent and may not always be achievable.
Key to Flags: D = Chromatogram does not match gasoline (OA-1 only) B = Blank hit for this compound
Units: mg/L = ppm ug/g = mg/kg = ppm ug/L = ppb

R. L. Bindert
Operations Manager

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ANALYTICAL REPORT

Dan Flaig
DAHL & ASSOCIATES, INC.
2627 Hickory Grove Road
Davenport, IA 52804

(319)388-0888

10/08/1993

NET Job Number: 92.4268

NET Sample Number: 171529

Collected by: Doug Johnson

Collectors Phone No.: 319/388-0888

Job Description: PROJECT #QEIA-1097

Date Taken: 05/22/1992

Date Received: 05/29/1992

Sample ID: TB-5a 6-8' P.A.L./Davenport

Analyte	Result	Units	Result Flag	Analyst	Date Analyzed	Method	Reporting Limit		Matrix
VOLATILES - BTEX (NONAQUEOUS)									Soil
Benzene	<0.5	ug/g		bqb	06/04/1992	S-8015/IA-OA1	0.5	ug/g	Soil
Ethylbenzene	<0.5	ug/g		bqb	06/04/1992	S-8015/IA-OA1	0.5	ug/g	Soil
Toluene	<0.5	ug/g		bqb	06/04/1992	S-8015/IA-OA1	0.5	ug/g	Soil
Xylenes, Total	<0.5	ug/g		bqb	06/04/1992	S-8015/IA-OA1	0.5	ug/g	Soil
Total Hydrocarbons	33.	ug/g		bqb	06/04/1992	S-8015/IA-OA1	10	ug/g	Soil

All results are calculated on a wet weight basis.
Reporting Limits are extremely matrix dependent and may not always be achievable.
Key to Flags: D = Chromatogram does not match gasoline (OA-1 only) B = Blank hit for this compound
Units: mg/L = ppm ug/g = mg/kg = ppm ug/L = ppb

R. L. Bindert
Operations Manager

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ANALYTICAL REPORT

Dan Flaig
DAHL & ASSOCIATES, INC.
2627 Hickory Grove Road
Davenport, IA 52804

(319)388-0888

10/08/1993

NET Job Number: 92.4269

NET Sample Number: 171530

Collected by: Al Barrionuevo

Collectors Phone No.: 319/388-0888

Job Description: PROJECT #QEIA-1097

Date Taken: 05/26/1992

Date Received: 05/29/1992

Sample ID: TB-6 6-8' P.A.L./Davenport

Analyte	Result	Units	Result Flag	Analyst	Date Analyzed	Method	Reporting Limit		Matrix
VOLATILES - BTEX (NONAQUEOUS)									Soil
Benzene	<0.5	ug/g		bqb	06/05/1992	S-8015/IA-OA1	0.5	ug/g	Soil
Ethylbenzene	<0.5	ug/g		bqb	06/05/1992	S-8015/IA-OA1	0.5	ug/g	Soil
Toluene	<0.5	ug/g		bqb	06/05/1992	S-8015/IA-OA1	0.5	ug/g	Soil
Xylenes, Total	<0.5	ug/g		bqb	06/05/1992	S-8015/IA-OA1	0.5	ug/g	Soil
Total Hydrocarbons	<10	ug/g		bqb	06/05/1992	S-8015/IA-OA1	10	ug/g	Soil

All results are calculated on a wet weight basis.
Reporting Limits are extremely matrix dependent and may not always be achievable.
Key to Flags: D = Chromatogram does not match gasoline (OA-1 only) B = Blank hit for this compound
Units: mg/L = ppm ug/g = mg/kg = ppm ug/L = ppb

R. L. Bindert
Operations Manager

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ANALYTICAL REPORT

Dan Flaig
DAHL & ASSOCIATES, INC.
2627 Hickory Grove Road
Davenport, IA 52804

(319)388-0888

10/08/1993

NET Job Number: 92.4269

NET Sample Number: 171531

Collected by: Al Barrionuevo

Collectors Phone No.: 319/388-0888

Job Description: PROJECT #QEIA-1097

Date Taken: 05/26/1992

Date Received: 05/29/1992

Sample ID: TB-7 4-6' P.A.L./Davenport

Analyte	Result	Units	Result Flag	Analyst	Date Analyzed	Method	Reporting Limit		Matrix
VOLATILES - BTEX (NONAQUEOUS)									Soil
Benzene	<0.5	ug/g		bqb	06/05/1992	S-8015/IA-OA1	0.5	ug/g	Soil
Ethylbenzene	<0.5	ug/g		bqb	06/05/1992	S-8015/IA-OA1	0.5	ug/g	Soil
Toluene	<0.5	ug/g		bqb	06/05/1992	S-8015/IA-OA1	0.5	ug/g	Soil
Xylenes, Total	<0.5	ug/g		bqb	06/05/1992	S-8015/IA-OA1	0.5	ug/g	Soil
Total Hydrocarbons	<10	ug/g		bqb	06/05/1992	S-8015/IA-OA1	10	ug/g	Soil

All results are calculated on a wet weight basis.
Reporting Limits are extremely matrix dependent and may not always be achievable.
Key to Flags: D = Chromatogram does not match gasoline (OA-1 only) B = Blank hit for this compound
Units: mg/L = ppm ug/g = mg/kg = ppm ug/L = ppb

R. L. Bindert
Operations Manager

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ANALYTICAL REPORT

Dan Flaig
DAHL & ASSOCIATES, INC.
2627 Hickory Grove Road
Davenport, IA 52804

(319)388-0888

10/08/1993

NET Job Number: 92.4269

NET Sample Number: 171532

Collected by: Al Barrionuevo

Collectors Phone No.: 319/388-0888

Job Description: PROJECT #QEIA-1097

Date Taken: 05/26/1992

Date Received: 05/29/1992

Sample ID: TB-8 6-8' P.A.L./Davenport

Analyte	Result	Units	Result Flag	Analyst	Date Analyzed	Method	Reporting Limit		Matrix
VOLATILES - BTEX (NONAQUEOUS)									Soil
Benzene	<0.5	ug/g		bqb	06/05/1992	S-8015/IA-OA1	0.5	ug/g	Soil
Ethylbenzene	<0.5	ug/g		bqb	06/05/1992	S-8015/IA-OA1	0.5	ug/g	Soil
Toluene	<0.5	ug/g		bqb	06/05/1992	S-8015/IA-OA1	0.5	ug/g	Soil
Xylenes, Total	<0.5	ug/g		bqb	06/05/1992	S-8015/IA-OA1	0.5	ug/g	Soil
Total Hydrocarbons	19.	ug/g		bqb	06/05/1992	S-8015/IA-OA1	10	ug/g	Soil

All results are calculated on a wet weight basis.
Reporting Limits are extremely matrix dependent and may not always be achievable.
Key to Flags: D = Chromatogram does not match gasoline (OA-1 only) B = Blank hit for this compound
Units: mg/L = ppm ug/g = mg/kg = ppm ug/L = ppb

R. L. Bindert
Operations Manager

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Cedar Falls Division
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ANALYTICAL REPORT

Dan Flaig
DAHL & ASSOCIATES, INC.
2627 Hickory Grove Road
Davenport, IA 52804

(319)388-0888

10/08/1993

NET Job Number: 92.5758

NET Sample Number: 177293

Collected by: Doug Johnson

Collectors Phone No.: 319/388-0888

Job Description: PROJECT #QEIA-1097

Date Taken: 07/15/1992

Date Received: 07/18/1992

Sample ID: TB-16 6-8' P.A.L./Davenport

Analyte	Result	Units	Result Flag	Analyst	Date Analyzed	Method	Reporting Limit		Matrix
VOLATILES - BTEX (NONAQUEOUS)									Soil
Benzene	<0.5	ug/g		djl	07/28/1992	S-8015/IA-OA1	0.5	ug/g	Soil
Ethylbenzene	<0.5	ug/g		djl	07/28/1992	S-8015/IA-OA1	0.5	ug/g	Soil
Toluene	<0.5	ug/g		djl	07/28/1992	S-8015/IA-OA1	0.5	ug/g	Soil
Xylenes, Total	<0.5	ug/g		djl	07/28/1992	S-8015/IA-OA1	0.5	ug/g	Soil
Total Hydrocarbons	18.	ug/g	D	djl	07/28/1992	S-8015/IA-OA1	10	ug/g	Soil

All results are calculated on a wet weight basis.
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Key to Flags: D = Chromatogram does not match gasoline (OA-1 only) B = Blank hit for this compound
Units: mg/L = ppm ug/g = mg/kg = ppm ug/L = ppb

R. L. Bindert
Operations Manager

RE-ISSUED

OCEAN GROUP

CHAIN OF CUSTODY RECORD

PROJECT NO. 3 | PROJECT NAME: PAL UST REMOVAL

SAMPLERS: (Signature)

SAMPLE NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	TOTP (GASOLINE)	TOL (HEATING OIL)					REMARKS
	1/7/10	1100		X	3' BELOW EXC. TANK #1		X						
	1/7/10	1130		X	3' BELOW EXC. TANK #2			X					
	1/7/10	1135		X	PIPING, TANK #2			X					

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks	

Distribution: Original Accompanies Shipment; Copy to Coordinator Field Files

BELING
CONSULTANTS

LABORATORY REPORT
January 25, 1991

Professional Planning and Engineering . Environmental Laboratory

Alter Environmental Services, Inc.
P.O. Box 3643
Davenport, Iowa 52805

MW-5

Lab No. 38228
Received: January 14, 1991
Job No. 285
Groundwater Sample
Collection Point: 626 Schmidt Road Davenport, Iowa
Collected: January 14, 1991
Sampler: John Hergert, AES (319)-323-8107

	CONCENTRATION
Benzene, mg/L	<0.005
Toluene, mg/L	<0.005
Total Xylenes, mg/L	<0.005
Ethylbenzene, mg/L	<0.005

Sample Analyzed: January 21, 1991
Analyst: Jane C. Vance
Detection Limits: Benzene - 0.005 mg/L
Toluene - 0.005 mg/L
Total Xylenes - 0.005 mg/L
Ethylbenzene - 0.005 mg/L
Methods of Analysis: BETX - EPA 5030/8240

Jeffrey O. Vance

BELING CONSULTANTS

LABORATORY REPORT

November 5, 1990

Professional Planning and Engineering . Environmental Laboratory

Alter Environmental Services, Inc.
P.O. Box 3643
Davenport, Iowa 52805

Lab No. 36366
Received: October 18, 1990
Job No. 0203
Soil Sample No. 3 Piping Tank #2
Collection Point: PAL UST Removal
Collected: October 17, 1990
Sampler: Jon LeSuer

Total Solids	89.0 %

	CONCENTRATION DRY WEIGHT BASIS
Benzene, mg/Kg	0.014
Toluene, mg/Kg	0.084
Total Xylenes, mg/Kg	0.094
Ethylbenzene, mg/Kg	0.014
Total Organic Hydrocarbons, mg/Kg (as Heating Oil)	31

Sample Analyzed: BETX-October 23, 1990
TOH-November 2, 1990
Analyst: BETX-Michael J. Howdeshell
TOH-Jeffrey A. Wasson
Detection Limits: Benzene - 0.005 mg/Kg
Toluene - 0.005 mg/Kg
Total Xylenes - 0.005 mg/Kg
Ethylbenzene - 0.005 mg/Kg
Total Organic Hydrocarbons
As Gasoline - 0.1 mg/Kg
As Heating Oil - 3.0 mg/Kg
Methods of Analysis: BETX - EPA 5030/8240
TOH as Gasoline - UHL OA-1
TOH as Diesel - UHL OA-2

Jeffrey A. Wasson

BELING CONSULTANTS

LABORATORY REPORT

November 5, 1990

Professional Planning and Engineering . Environmental Laboratory

Alter Environmental Services, Inc.
P.O. Box 3643
Davenport, Iowa 52805

Lab No. 36365
Received: October 18, 1990
Job No. 0203
Soil Sample No. 2 3' Beneath Exc. #2
Collection Point: PAL UST Removal
Collected: October 17, 1990
Sampler: Jon LeSuer

Total Solids	75.6 %

CONCENTRATION DRY WEIGHT BASIS

Benzene, mg/Kg	<0.007
Toluene, mg/Kg	<0.007
Total Xylenes, mg/Kg	<0.007
Ethylbenzene, mg/Kg	<0.007
Total Organic Hydrocarbons, mg/Kg (as Heating Oil)	509

Sample Analyzed: BETX-October 23, 1990
TOH-November 2, 1990
Analyst: BETX-Michael J. Howdeshell
TOH-Jeffrey A. Wasson
Detection Limits: Benzene - 0.005 mg/Kg
Toluene - 0.005 mg/Kg
Total Xylenes - 0.005 mg/Kg
Ethylbenzene - 0.005 mg/Kg
Total Organic Hydrocarbons
As Gasoline - 0.1 mg/Kg
As Heating Oil - 3.0 mg/Kg
Methods of Analysis: BETX - EPA 5030/8240
TOH as Gasoline - UHL OA-1
TOH as Diesel - UHL OA-2

Jeffrey A. Wasson

NATIONAL ENVIRONMENTAL TESTING, INC.

Cedar Falls Division
704 Enterprise Drive
Cedar Falls, IA 50613
Tel: (319) 277-2401
Fax: (319) 277-2425

ANALYTICAL REPORT

Dan Flaig
DAHL & ASSOCIATES, INC.
2627 Hickory Grove Road
Davenport, IA 52804

(319)388-0888

10/08/1993

NET Job Number: 92.4268

NET Sample Number: 171526

Collected by: Doug Johnson

Collectors Phone No.: 319/388-0888

Job Description: PROJECT #QEIA-1097

Date Taken: 05/22/1992

Date Received: 05/29/1992

Sample ID: TB-3 8-10' P.A.L./Davenport

Analyte	Result	Units	Result Flag	Analyst	Date Analyzed	Method	Reporting Limit		Matrix
VOLATILES - BTEX (NONAQUEOUS)									Soil
Benzene	<0.5	ug/g		bqb	06/05/1992	S-8015/IA-OA1	0.5	ug/g	Soil
Ethylbenzene	<0.5	ug/g		bqb	06/05/1992	S-8015/IA-OA1	0.5	ug/g	Soil
Toluene	<0.5	ug/g		bqb	06/05/1992	S-8015/IA-OA1	0.5	ug/g	Soil
Xylenes, Total	<0.5	ug/g		bqb	06/05/1992	S-8015/IA-OA1	0.5	ug/g	Soil
Total Hydrocarbons	<10	ug/g		bqb	06/05/1992	S-8015/IA-OA1	10	ug/g	Soil

All results are calculated on a wet weight basis.
Reporting Limits are extremely matrix dependent and may not always be achievable.
Key to Flags: D = Chromatogram does not match gasoline (OA-1 only) B = Blank hit for this compound
Units: mg/L = ppm ug/g = mg/kg = ppm ug/L = ppb

R. L. Bindert
Operations Manager

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ANALYTICAL REPORT

Dan Flaig
DAHL & ASSOCIATES, INC.
2627 Hickory Grove Road
Davenport, IA 52804

(319)388-0888

10/08/1993

NET Job Number: 92.4268

NET Sample Number: 171527

Collected by: Doug Johnson

Collectors Phone No.: 319/388-0888

Job Description: PROJECT #QEIA-1097

Date Taken: 05/22/1992

Date Received: 05/22/1992

Sample ID: TB-4 6-8' P.A.L./Davenport

Analyte	Result	Units	Result Flag	Analyst	Date Analyzed	Method	Reporting Limit		Matrix
VOLATILES - BTEX (NONAQUEOUS)									Soil
Benzene	<0.5	ug/g		bqb	06/05/1992	S-8015/IA-OA1	0.5	ug/g	Soil
Ethylbenzene	<0.5	ug/g		bqb	06/05/1992	S-8015/IA-OA1	0.5	ug/g	Soil
Toluene	<0.5	ug/g		bqb	06/05/1992	S-8015/IA-OA1	0.5	ug/g	Soil
Xylenes, Total	<0.5	ug/g		bqb	06/05/1992	S-8015/IA-OA1	0.5	ug/g	Soil
Total Hydrocarbons	<10	ug/g		bqb	06/05/1992	S-8015/IA-OA1	10	ug/g	Soil

All results are calculated on a wet weight basis.
Reporting Limits are extremely matrix dependent and may not always be achievable.
Key to Flags: D = Chromatogram does not match gasoline (OA-1 only) B = Blank hit for this compound
Units: mg/L = ppm ug/g = mg/kg = ppm ug/L = ppb

R. L. Bindert
Operations Manager

RE-ISSUED

OCEAN GROUP

NATIONAL ENVIRONMENTAL TESTING, INC.

Cedar Falls Division
704 Enterprise Drive
Cedar Falls, IA 50613
Tel: (319) 277-2401
Fax: (319) 277-2425

ANALYTICAL REPORT

Dan Flaig
DAHL & ASSOCIATES, INC.
2627 Hickory Grove Road
Davenport, IA 52804

(319)388-0888

10/08/1993

NET Job Number: 92.4268

NET Sample Number: 171524

Collected by: Doug Johnson

Collectors Phone No.: 319/388-0888

Job Description: PROJECT #QEIA-1097

Date Taken: 05/21/1992

Date Received: 05/29/1992

Sample ID: TB-1 10-12' P.A.L./Davenport

Analyte	Result	Units	Result Flag	Analyst	Date Analyzed	Method	Reporting Limit		Matrix
VOLATILES - BTEX (NONAQUEOUS)									Soil
Benzene	<0.5	ug/g		djl	06/03/1992	S-8015/IA-OA1	0.5	ug/g	Soil
Ethylbenzene	<0.5	ug/g		djl	06/03/1992	S-8015/IA-OA1	0.5	ug/g	Soil
Toluene	<0.5	ug/g		djl	06/03/1992	S-8015/IA-OA1	0.5	ug/g	Soil
Xylenes, Total	<0.5	ug/g		djl	06/03/1992	S-8015/IA-OA1	0.5	ug/g	Soil
Total Hydrocarbons	<10	ug/g		djl	06/03/1992	S-8015/IA-OA1	10	ug/g	Soil

All results are calculated on a wet weight basis.
Reporting Limits are extremely matrix dependent and may not always be achievable.
Key to Flags: D = Chromatogram does not match gasoline (OA-1 only) B = Blank hit for this compound
Units: mg/L = ppm ug/g = mg/kg = ppm ug/L = ppb

R. L. Bindert
Operations Manager

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ANALYTICAL REPORT

Dan Flaig
DAHL & ASSOCIATES, INC.
2627 Hickory Grove Road
Davenport, IA 52804

(319)388-0888

10/08/1993

NET Job Number: 92.4268

NET Sample Number: 171525

Collected by: Doug Johnson

Collectors Phone No.: 319/388-0888

Job Description: PROJECT #9EIA-1097

Date Taken: 05/22/1992

Date Received: 05/29/1992

Sample ID: TB-2 8-10' P.A.L./Davenport

Analyte	Result	Units	Result Flag	Analyst	Date Analyzed	Method	Reporting Limit		Matrix
VOLATILES - BTEX (NONAQUEOUS)									Soil
Benzene	<0.5	ug/g		bqb	06/05/1992	S-8015/IA-OA1	0.5	ug/g	Soil
Ethylbenzene	<0.5	ug/g		bqb	06/05/1992	S-8015/IA-OA1	0.5	ug/g	Soil
Toluene	<0.5	ug/g		bqb	06/05/1992	S-8015/IA-OA1	0.5	ug/g	Soil
Xylenes, Total	<0.5	ug/g		bqb	06/05/1992	S-8015/IA-OA1	0.5	ug/g	Soil
Total Hydrocarbons	<10.	ug/g		bqb	06/05/1992	S-8015/IA-OA1	10	ug/g	Soil

All results are calculated on a wet weight basis.
Reporting Limits are extremely matrix dependent and may not always be achievable.
Key to Flags: D = Chromatogram does not match gasoline (OA-1 only) B = Blank hit for this compound
Units: mg/L = ppm ug/g = mg/kg = ppm ug/L = ppb

R. L. Bindert
Operations Manager

RE-ISSUED

OCEAN GROUP

BELING CONSULTANTS

LABORATORY REPORT

November 5, 1990

Professional Planning and Engineering . Environmental Laboratory

Alter Environmental Services, Inc.
P.O. Box 3643
Davenport, Iowa 52805

Lab No. 36364
Received: October 18, 1990
Job No. 0203
Soil Sample No. 1 3' Beneath Exc. #1
Collection Point: PAL UST Removal
Collected: October 17, 1990
Sampler: Jon LeSuer

Total Solids	71.4 %

	CONCENTRATION DRY WEIGHT BASIS
Benzene, mg/Kg	11
Toluene, mg/Kg	78
Total Xylenes, mg/Kg	108
Ethylbenzene, mg/Kg	147
Total Organic Hydrocarbons, mg/Kg (as Gasoline)	1035

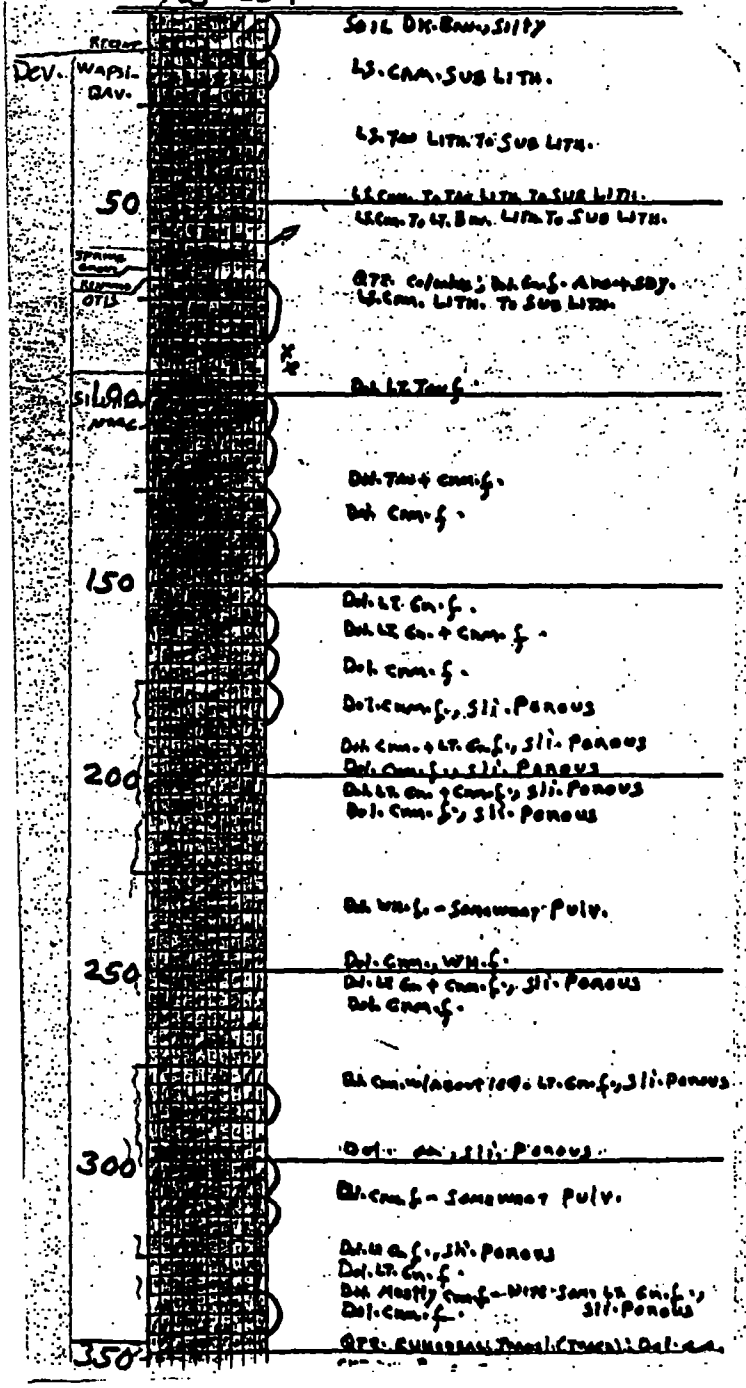
Sample Analyzed: BETX-October 23, 1990
TOH-October 23, 1990
Analyst: BETX-Michael J. Howdeshell
TOH-Michael J. Howdshell
Detection Limits: Benzene - 0.005 mg/Kg
Toluene - 0.005 mg/Kg
Total Xylenes - 0.005 mg/Kg
Ethylbenzene - 0.005 mg/Kg
Total Organic Hydrocarbons
As Gasoline - 0.1 mg/Kg
As Diesel Fuel - 3.0 mg/Kg
Methods of Analysis: BETX - EPA 5030/8240
TOH as Gasoline - UHL OA-1
TOH as Diesel - UHL OA-2

Jeffrey P. Wasson

X - Laboratory Data Sheets

FORM NO. 79—In stock and for sale by Ross-Martin Co., Tulsa. W-15055

STATE IOWA	DAVENPORT (SCOTT)
NW NE NW SW	A. P. Heusing
SEC. 34	Bathing Works, Inc.
TWP. 78N RGE. 3E	COMMENCED – APRIL 29, 1961 COMPLETED
	L. F. WINSLOW
	CASING RECORD
	LOGGED JUNE 11, 1968 BY NORTHUP
EL 575'	REMARKS
TD 917'	SWL 515'
	PL 88.2' @ 50 GPM.
	sp. cap 1.36 gpm/ft.
TLS-22	



Appendix 11 - VIII - Receptor Survey Narratives

A. Surface Water Body Survey: No surface water bodies were identified within 1000 feet of the former UST basins. Surface water bodies were identified using a USGS 7.5 minute quadrangle map, and visual surveying of the area.

B. Conduit Survey: No soil or groundwater contaminated to levels exceeding Action Levels for gasoline was found outside of the UST basins. It is not likely that any of the utility conduits in the vicinity of the UST basins could act as conduits for the transport of contamination. No formal investigation of conduits was conducted, other than the placement of test borings and monitoring wells between the UST basin and the utilities. The testborings and monitoring wells indicate that contamination in the soil and groundwater does not extend beyond the UST basins.

C. Groundwater Well Survey: The locations of three groundwater wells have been identified within 1000 feet of the UST basins, and are indicated on the Receptor Survey map. Specific information on each well is included in the body of the SCR on page 14. Copies of the available well logs are attached.

The P.A.L. well, located approximately 300 feet north of the UST #1 basin has been plugged and abandoned. The well was approximately 400 feet deep and 12 inches in diameter. It was plugged by Latta Pump and Well on October 11-15, 1993. The length of the casing and the water producing zones were not known prior to plugging, so the well was sealed by pumping in bentonite to 4 feet below the surface. The steel casing was cut off 4 feet below the ground surface, and the site restored to grade. The IDNR form 542-1226 was completed by the well contractor, and sent to the IDNR. A copy was not available at the time this report was submitted.

Because no contamination of the groundwater by gasoline was detected, no impact to the area water wells would be expected. For this reason, water samples from area wells were not analyzed.

D. Groundwater Barrier Survey: The variability of depth to the bedrock surface could potentially cause local variations in the groundwater flow direction. In areas were the bedrock nears the land surface, groundwater flowing through that area would be diverted around the bedrock high. No contamination of the groundwater has been detected, so groundwater barriers will have no effect on contaminant transport.

PROJECT SITE LOCATION

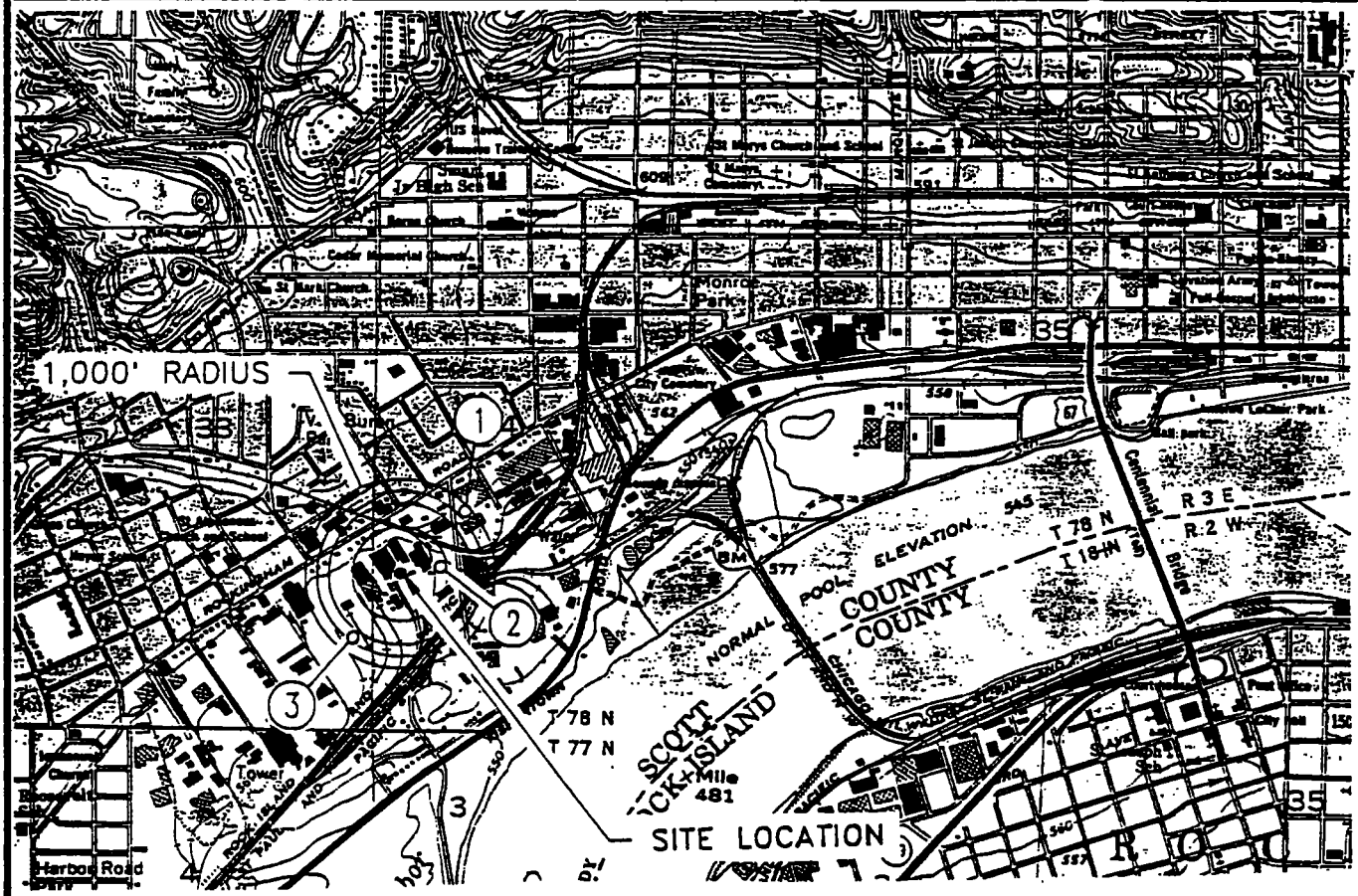
NORTH

W E S

LAT. N. 41° 30' 59"	T. 78N
LONG. W. 90° 36' 41"	R. 3E
	SEC. 34

U.S.G.S. STANDARD NAME
DAVENPORT EAST, IOWA–ILL.

QUADRANGLE LOCATION



GROUNDWATER WELL SURVEY
SURFACE WATER BODY SURVEY

NOTE: NO SURFACE WATER BODIES PRESENT WITHIN 1,000' OF SITE

SHEET 1 OF 2

WELL #	No.
1	W-15055
2	#2 P.A.L
3	#3 ALTER

SCALE 1:24000

1000 0 1000 2000 3000 4000 5000 6000 FEET

1 0 1 KILOMETER

CONTOUR INTERVAL 10 FEET

Heavy duty ——— Light duty ———

Medium duty ——— Unimproved dirt = = = =

Interstate Route U.S. Route State Route

BASED ON U.S.G.S. 7.5 MINUTE SERIES (TOPOGRAPHIC) MAP

2627 Hickory Grove Road
Davenport, IA 52804
Phone (319)388-0888
FAX (319)388-9410

DAHL & ASSOCIATES, INC.
Environmental Consultants, Contractors & Engineers

RECEPTOR SURVEY MAP
PACIFIC ACTIVITIES LIMITED

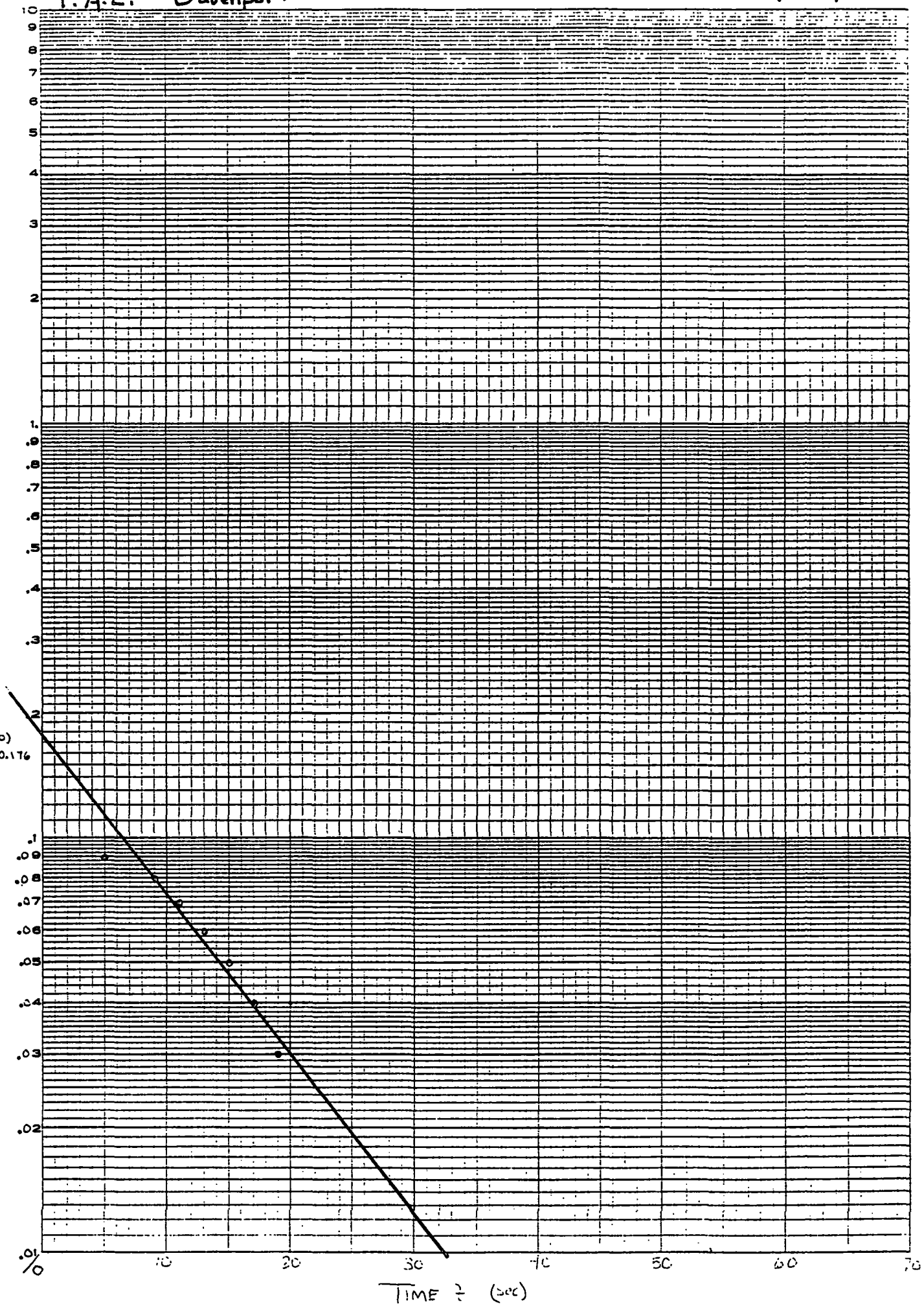
DAVENPORT , IOWA

DATE DRAWN	7/10/92	DRAWN BY	Don Mc.	APPR. BY	
PLOT DATE	7-10-92	AutoCAD FILE NAME	1097-02A	PLOT SCALE	1" =2000'
PROJECT NUMBER	QEIA1097	DRAWING NUMBER	A-02-A	FIG. #	

VIII - Receptor Survey

P.A.L. – Davenport

MW-9



Hydraulic Conductivity Calculation

L	3.55	Length (feet) of screen below static water level	MW-9
H	3.55	Depth(feet) of well below static water level	QEIA-1097
D	14	Depth(feet) static water level to confining strata- measured or assumed	
R(s)	0.08333333	DIAMETER OF WELL IN INCHES IN CELL D4	2
R(c)	0.22569578	see cell B16	
r(w)	0.359375	DIAMETER BORING IN INCHES IN CELL D6	8.625
P	0.36	Porosity - assumed or measured	
A	2.4	Value from graph	
B	0.4	Value from graph	
T(yo)	0	TIME (SECONDS) OF INITIAL DATA POINT	
T(yt)	9	TIME(SECONDS)OF FIRST DATA POINT	
Y(o)	0.176	DRAWDOWN(FEET)OF INITIAL DATA POINT	
Y(t)	0.08	DRAWDOWN (FEET) OF CURRENT DATA POINT	

R(c)	0.22569578
LN(R(e)/r(w)	1.16319995
LN(Y(o)/Y(t)	0.78845736

K	19.2528682	HYDRAULIC CONDUCTIVITY (meters/day)

Second time (sec)	11
Third time (sec)	13
Fourth time(seconds)	15
Fifth time(seconds)	17
Sixth time(seconds)	19

Second drawdown (feet)	0.07
Third drawdown(feet)	0.06
Fourth drawdown(feet)	0.05
Fifth drawdown(feet)	0.04
Sixth drawdown(feet)	0.03

Hydraulic Conductivity

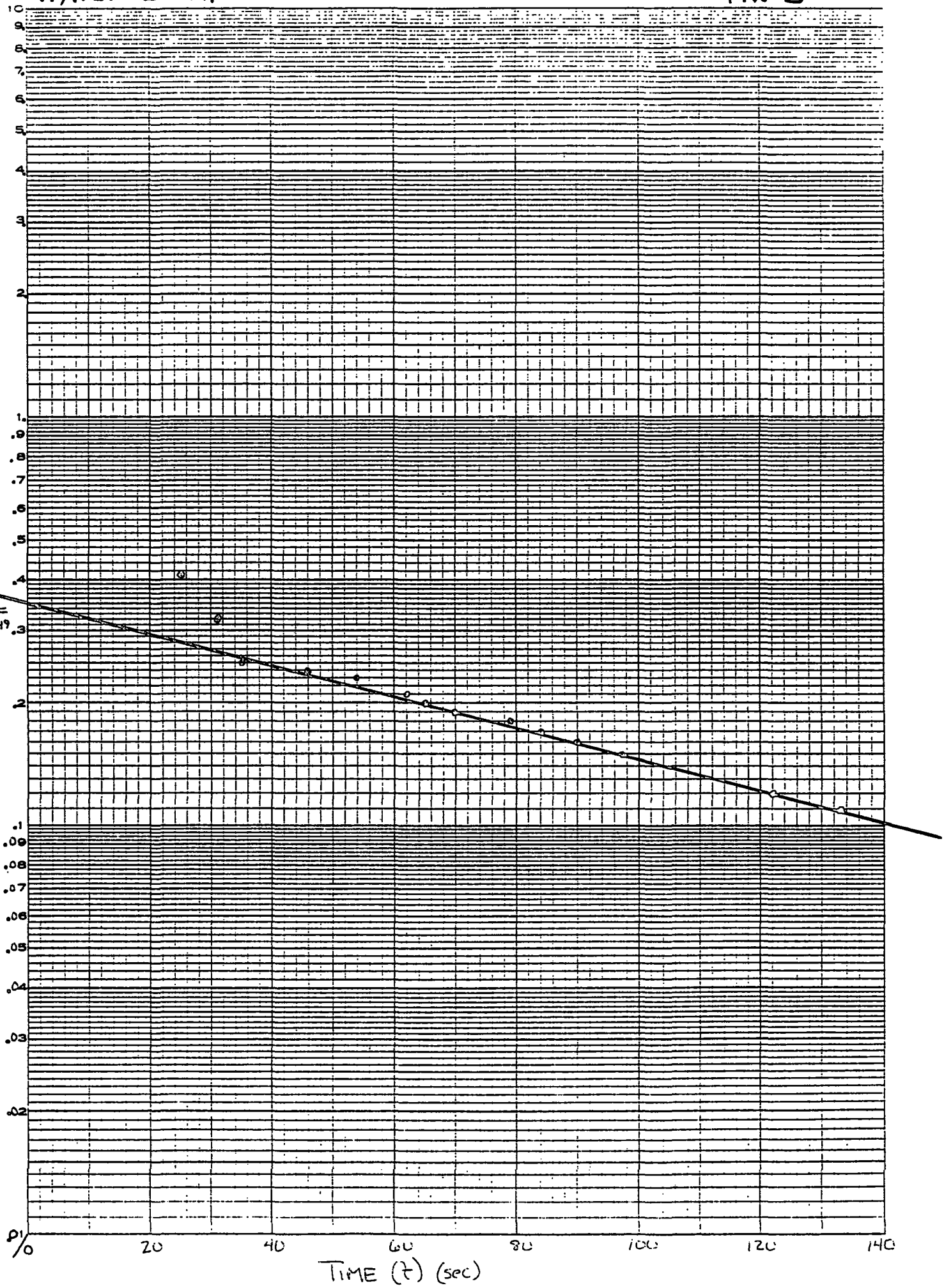
T1	19.2529 meters/day
T2	18.4201 meters/day
T3	18.1922 meters/day
T4	18.4378 meters/day
T5	19.1533 meters/day
T6	20.4647 meters/day

AVERAGE HYDRAULIC CONDUCTIVITY

18.9868 meters/day

P.A.L. - Davenport

MW-5



SEMI-LOGARITHMIC
3 CYCLES X 10 DIVISIONS PER INCH

Hydraulic Conductivity Calculation

L	2.65	Length (feet) of screen below static water level	MW-5
H	2.65	Depth(feet) of well below static water level	QEIA-1097
D	14	Depth(feet) static water level to confining strata- measured or assumed	
R(s)	0.08333333	DIAMETER OF WELL IN INCHES IN CELL D4	2
R(c)	0.22569578	see cell B16	
r(w)	0.359375	DIAMETER BORING IN INCHES IN CELL D6	8.625
P	0.36	Porosity - assumed or measured	
A	2.4	Value from graph	
B	0.4	Value from graph	
T(yo)	0	TIME (SECONDS) OF INITIAL DATA POINT	
T(yt)	35	TIME(SECONDS)OF FIRST DATA POINT	
Y(o)	0.349	DRAWDOWN(FEET)OF INITIAL DATA POINT	
Y(t)	0.25	DRAWDOWN (FEET) OF CURRENT DATA POINT	

R(c)	0.22569578
LN(R(e)/r(w)	0.94044707
LN(Y(o)/Y(t)	0.333611

K	2.26879116	HYDRAULIC CONDUCTIVITY (meters/day)

Second time (sec)	46
Third time (sec)	54
Fourth time(seconds)	62
Fifth time(seconds)	65
Sixth time(seconds)	70

Second drawdown (feet)	0.24
Third drawdown(feet)	0.23
Fourth drawdown(feet)	0.21
Fifth drawdown(feet)	0.2
Sixth drawdown(feet)	0.19

Hydraulic Conductivity

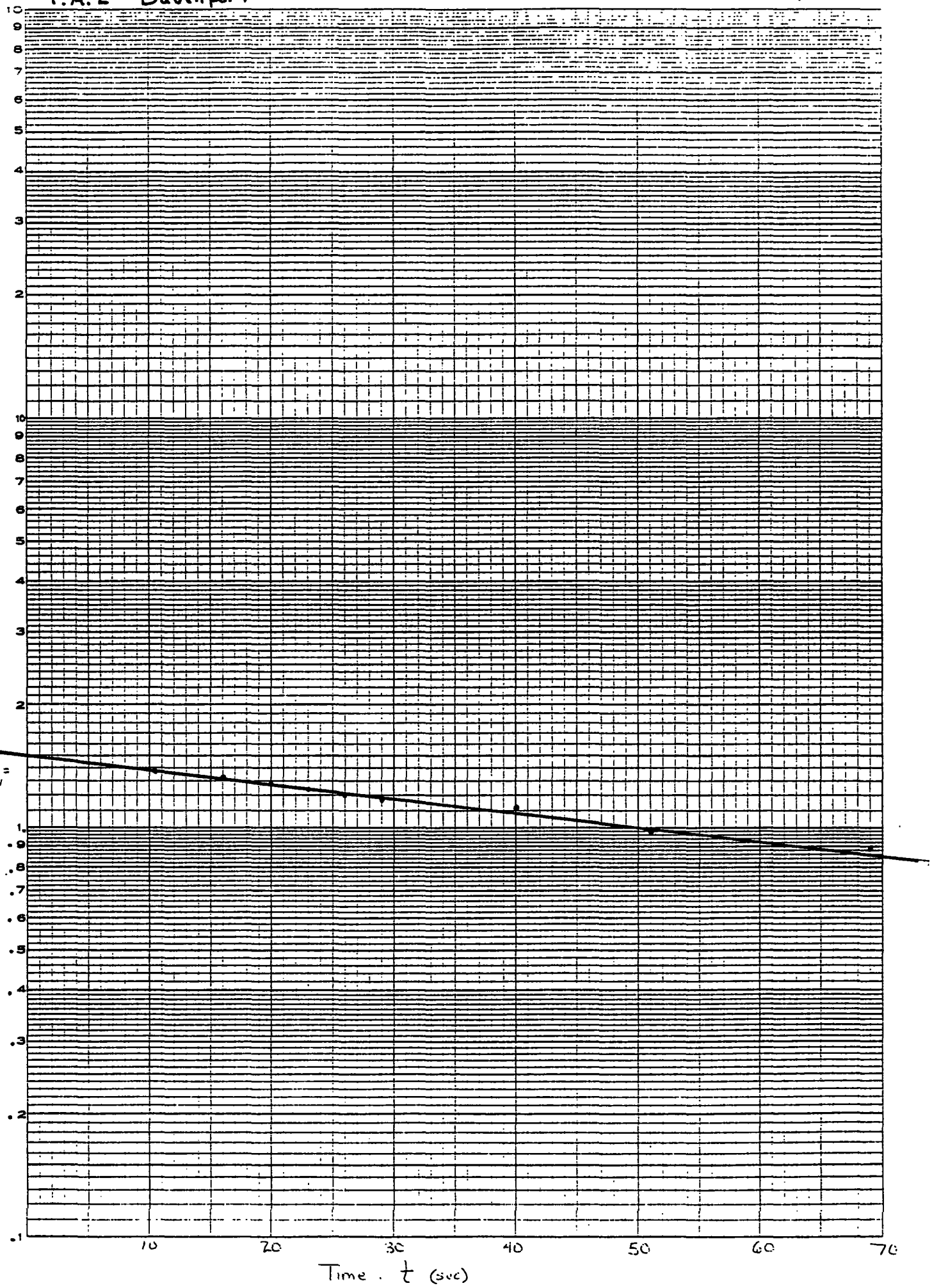
T1	2.2688 meters/day
T2	1.9375 meters/day
T3	1.8380 meters/day
T4	1.9501 meters/day
T5	2.0388 meters/day
T6	2.0676 meters/day

AVERAGE HYDRAULIC CONDUCTIVITY

2.0168 meters/day

P.A.L - Davenport

MW-3



Hydraulic Conductivity Calculation

L	5	Length (feet) of screen below static water level	MW-3
H	9.34	Depth(feet) of well below static water level	QEIA-1097
D	14	Depth(feet) static water level to confining strata- measured or assumed	
R(s)	0.08333333	DIAMETER OF WELL IN INCHES IN CELL D4	2
R(c)	0.22569578	see cell B16	
r(w)	0.359375	DIAMETER BORING IN INCHES IN CELL D6	8.625
P	0.36	Porosity - assumed or measured	
A	2.4	Value from graph	
B	0.4	Value from graph	
T(yo)	0	TIME (SECONDS) OF INITIAL DATA POINT	
T(yt)	11	TIME(SECONDS)OF FIRST DATA POINT	
Y(o)	1.5	DRAWDOWN(FEET)OF INITIAL DATA POINT	
Y(t)	1.38	DRAWDOWN (FEET) OF CURRENT DATA POINT	

R(c)	0.22569578
LN(R(e)/r(w)	1.71282393
LN(Y(o)/Y(t)	0.08338161

K	1.74162246	HYDRAULIC CONDUCTIVITY (meters/day)

Second time (sec)	16
Third time (sec)	20
Fourth time(seconds)	23
Fifth time(seconds)	26
Sixth time(seconds)	68

Second drawdown (feet)	1.34
Third drawdown(feet)	1.28
Fourth drawdown(feet)	1.24
Fifth drawdown(feet)	1.2
Sixth drawdown(feet)	0.89

Hydraulic Conductivity

T1	1.7416 meters/day
T2	1.6198 meters/day
T3	1.8221 meters/day
T4	1.9016 meters/day
T5	1.9719 meters/day
T6	1.7638 meters/day

AVERAGE HYDRAULIC CONDUCTIVITY

1.8034 meters/day

Hydraulic Conductivity Calculations

$$K = \frac{r_c^2 \ln(\frac{R_e}{r_w})}{2L} \quad \frac{1}{t} \quad \ln\frac{y_0}{y_t}$$

K = Hydraulic Conductivity

r_c = radius of the well casing

R_e = equivalent radial distance over which head loss y is dissipated

r_w = radial distance between the undisturbed aquifer and the center of the well

L = length of the screened interval

t = time

y_0 = initial change in height of the water column when a slug of water is removed

y_t = change in height of the water column at time t

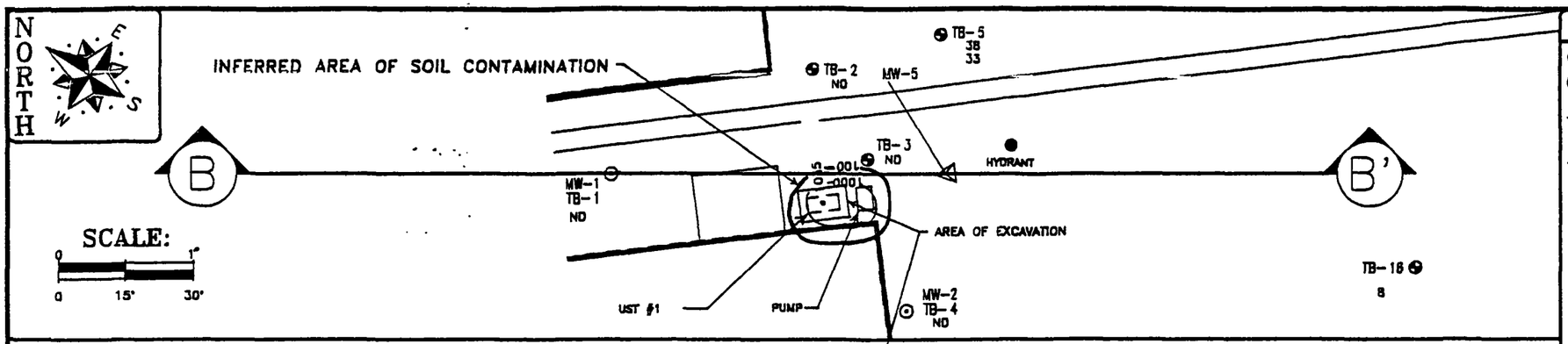
$$\ln\frac{R_e}{R_w} = \left[\frac{1.1}{\ln(\frac{H}{R_w})} + \frac{A + B \ln\left[\frac{(D-H)}{r_w}\right]}{\frac{L}{r_w}}\right]^{-1}$$

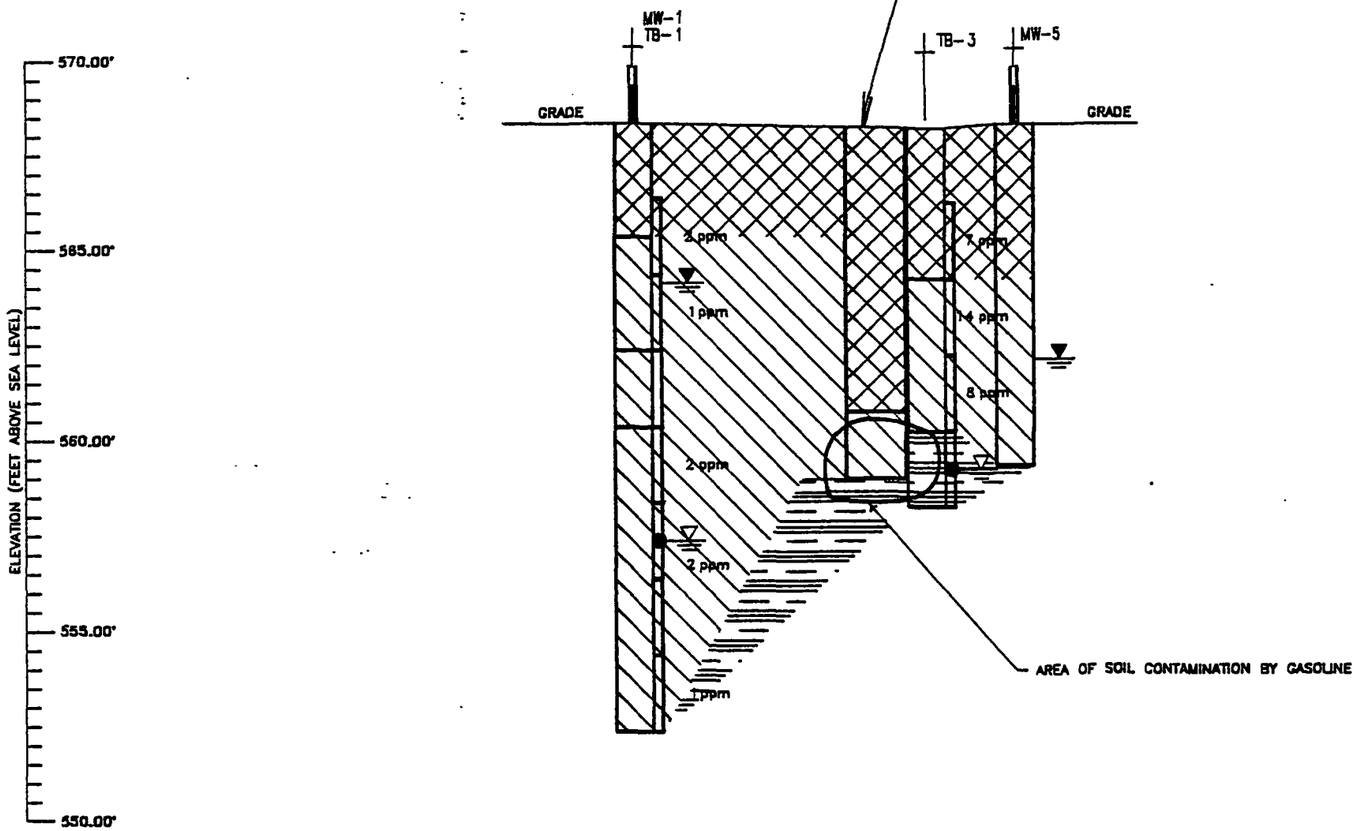
H = depth of water in the well

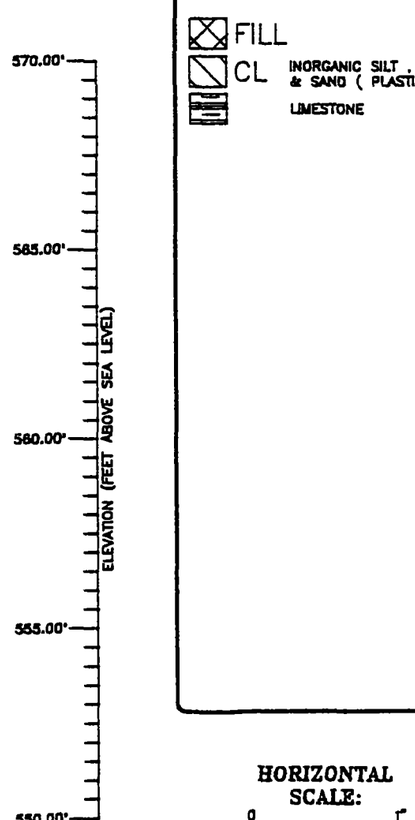
A , B = dimensionless coefficients derived from curves in Bouwer & Rice: Groundwater Hydraulics

D = vertical thickness of the aquifer

VI - Hydrogeological Cross-Section Diagrams







EXPLANATION

- TB- TEST BORING
- MW- MONITORING WELL
- WATER LEVEL WHILE DRILLING
- STATIC WATER LEVEL
- SPLIT SPOON SAMPLE INTERVAL with HNU Values IN PARTS PER MILLION (ppm)
- SOIL LAB SAMPLE

- FILL
- CL INORGANIC SILT , CLAY & SAND (PLASTICITY)
- LIMESTONE

HORIZONTAL SCALE:
0 1"
0 25' 50'

NOTE: EXAGGERATED VERTICAL SCALE

DAHL & ASSOCIATES, INC.
Environmental Consultants, Contractors & Engineers
2827 Hickory Grove Road
Davenport, IA 52804
Phone (319)388-0888
FAX (319)388-9410

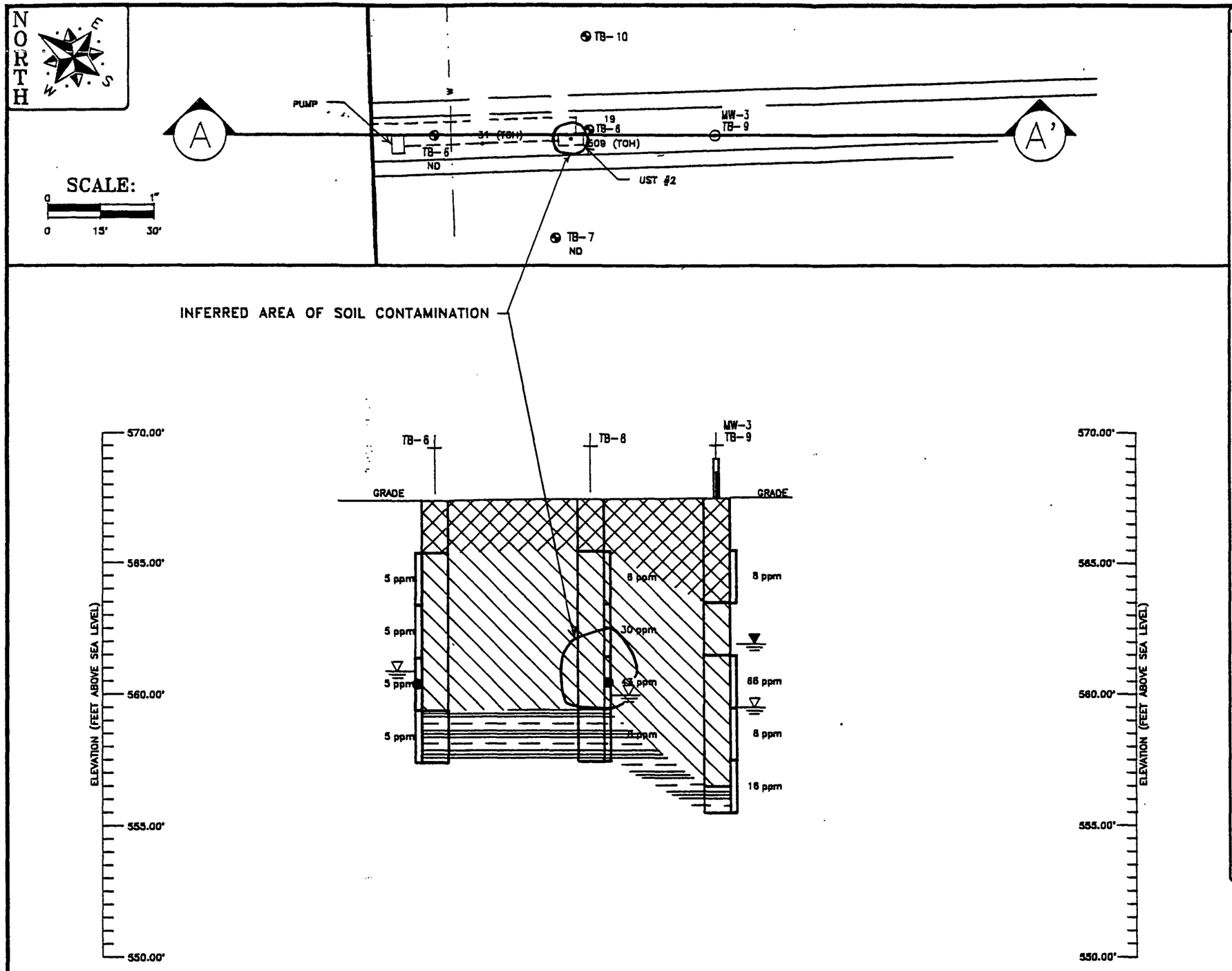
DAHL STD NO: QEIA1097-B-00-A

HYDROGEOLOGICAL CROSS SECTION B-B'
PACIFIC ACTIVITIES LIMITED
DAVENPORT, IOWA

PLOT DATE 10/13/93
AutoCAD FILE NAME 1097-10B
VERT. SCALE 1" = 4'

DATE DRAWN	10/13/93
DRAWN BY	C L Newberry
APPROVED BY	
DRAWING NUMBER	B- 10 -B
PROJECT NUMBER	QEIA1097
FIGURE NUMBER	

VII - Hydraulic Conductivity Data



EXPLANATION

- TB– TEST BORING
- MW– MONITORING WELL
- WATER LEVEL WHILE DRILLING
- STATIC WATER LEVEL
- SPLIT SPOON SAMPLE INTERVAL with HNU Values IN PARTS PER MILLION (ppm)
- SOIL LAB SAMPLE
- FILL
- CL INORGANIC SILT , CLAY & SAND (PLASTICITY)
- LIMESTONE

HORIZONTAL SCALE:
0 25' 50'

NOTE: EXAGGERATED VERTICAL SCALE

DAHL
& ASSOCIATES, INC.
Environmental Consultants, Contractors & Engineers
2627 Hickory Grove Road
Davenport, IA 52804
Phone (319)388-0888
FAX (319)388-9410

DAHL STD NO: QEIA1097-B-00-A

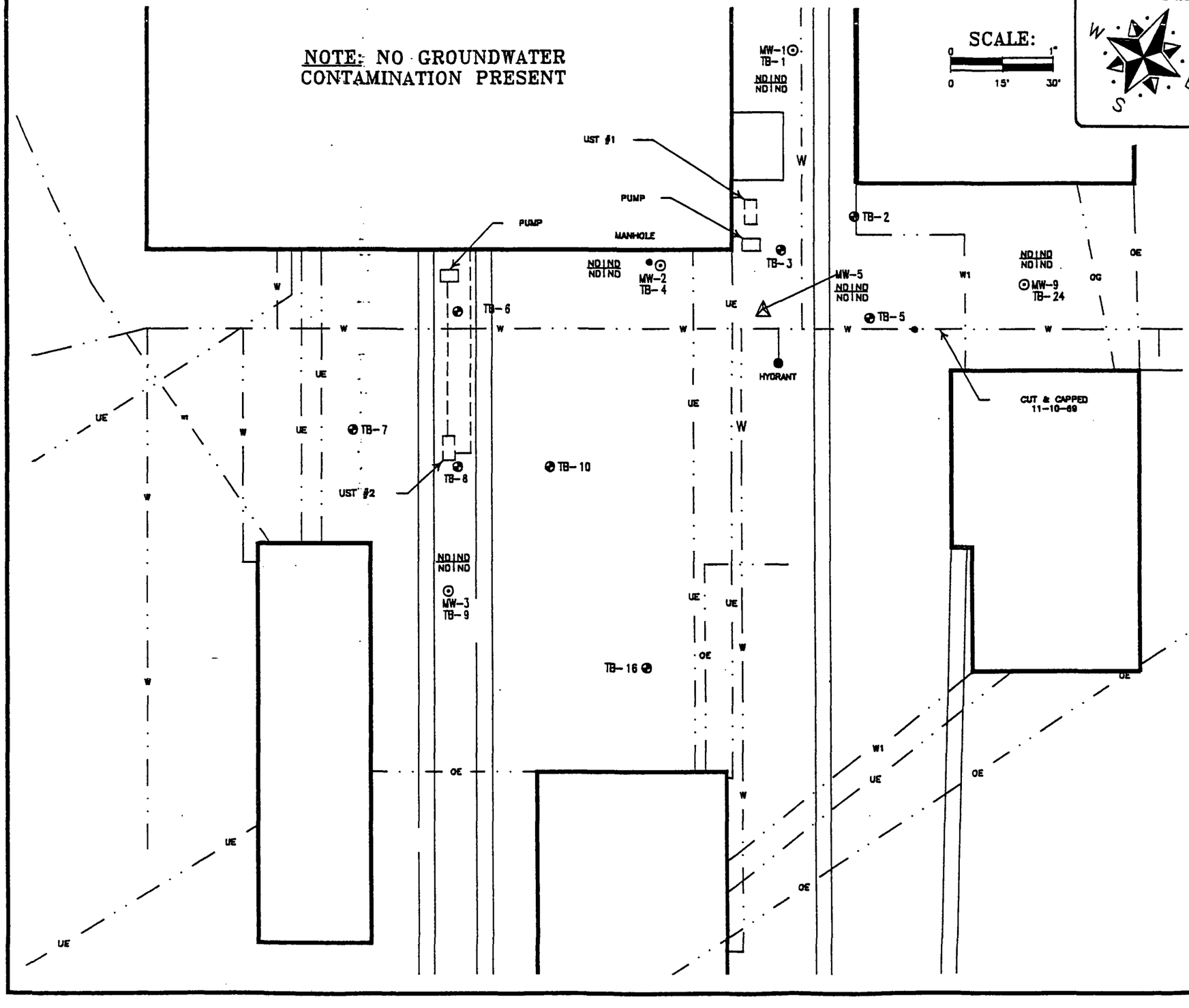
HYDROGEOLOGICAL CROSS SECTION A-A'
PACIFIC ACTIVITIES LIMITED
DAVENPORT, IOWA

PLOT DATE	10-13-93
AutoCAD FILE NAME	1097-09B
VERT. SCALE	1"=4'

DATE DRAWN	10/13/93
DRAWN BY	C L Newberry
APPROVED BY	
DRAWING NUMBER	B- 09 -B
PROJECT NUMBER	QEIA1097
FIGURE NUMBER	

IV(I) - Groundwater Contamination Plume

NOTE: NO GROUNDWATER CONTAMINATION PRESENT



SCALE: 0 15' 30' 1"

NORTH

EXPLANATION

NOTE :
This drawing (including property lines, structures, and locations of buried utilities) is not exact. For precise locations, consult a registered land surveyor and appropriate utility companies.

TANK#	SIZE	CONTENTS
1	300 Gal	GASOLINE
2	560 Gal	GASOLINE

—OE—	OVERHEAD ELECTRIC
—UE—	UNDERGROUND ELECTRIC
—OG—	OVERHEAD PROCESS GAS
—W1—	DOMESTIC WATER
—W—	CITY WATER (DISCONNECTED)
—X—	TRENCH w/ MISCELL.
△	EXISTING MONITORING WELL
⊕ TB-	DAHL TEST BORING
⊙ MW-	DAHL MONITORING WELL

NOTE:
VALUES REPRESENT B/E T/X IN ppb.

ppb	PARTS PER BILLION
B/E T/X	BENZENE, TOLUENE, ETHYL BENZENE, XYLENE
ND	NONE DETECTED

NOTE:
MW-3, MW-5 AND MW-9 WERE USED TO CALCULATE HYDRAULIC CONDUCTIVITY.

2627 Hickory Grove Road
Davenport, IA 52804
Phone (319)388-0888
FAX (319)388-9410

DAHL & ASSOCIATES, INC.
Environmental Consultants, Contractors & Engineers

DAHL STD NO: QEIA1097-B-00-A

GROUNDWATER CONTAMINATION PLUME MAP
PACIFIC ACTIVITIES LIMITED
DAVENPORT, IOWA

PLOT SCALE 1"=30'
AutoCAD FILE NAME 1097-06A
PLOT DATE 10-7-93

DATE DRAWN	5/27/92
DRAWN BY	Don Mc.
APPROVED BY	
DRAWING NUMBER	B- 06 -B
PROJECT NUMBER	QEIA1097
FIGURE NUMBER	

IV(G) - Groundwater Contour Map

EXPLANATION

NOTE :
This drawing (including property lines, structures, and locations of buried utilities) is not exact. For precise locations, consult a registered land surveyor and appropriate utility companies.

TANK#	SIZE	CONTENTS
1	300 Gal	GASOLINE
2	560 Gal	DIESEL
3	27,000 Gal	ABANDONED
4	27,000 Gal	ABANDONED

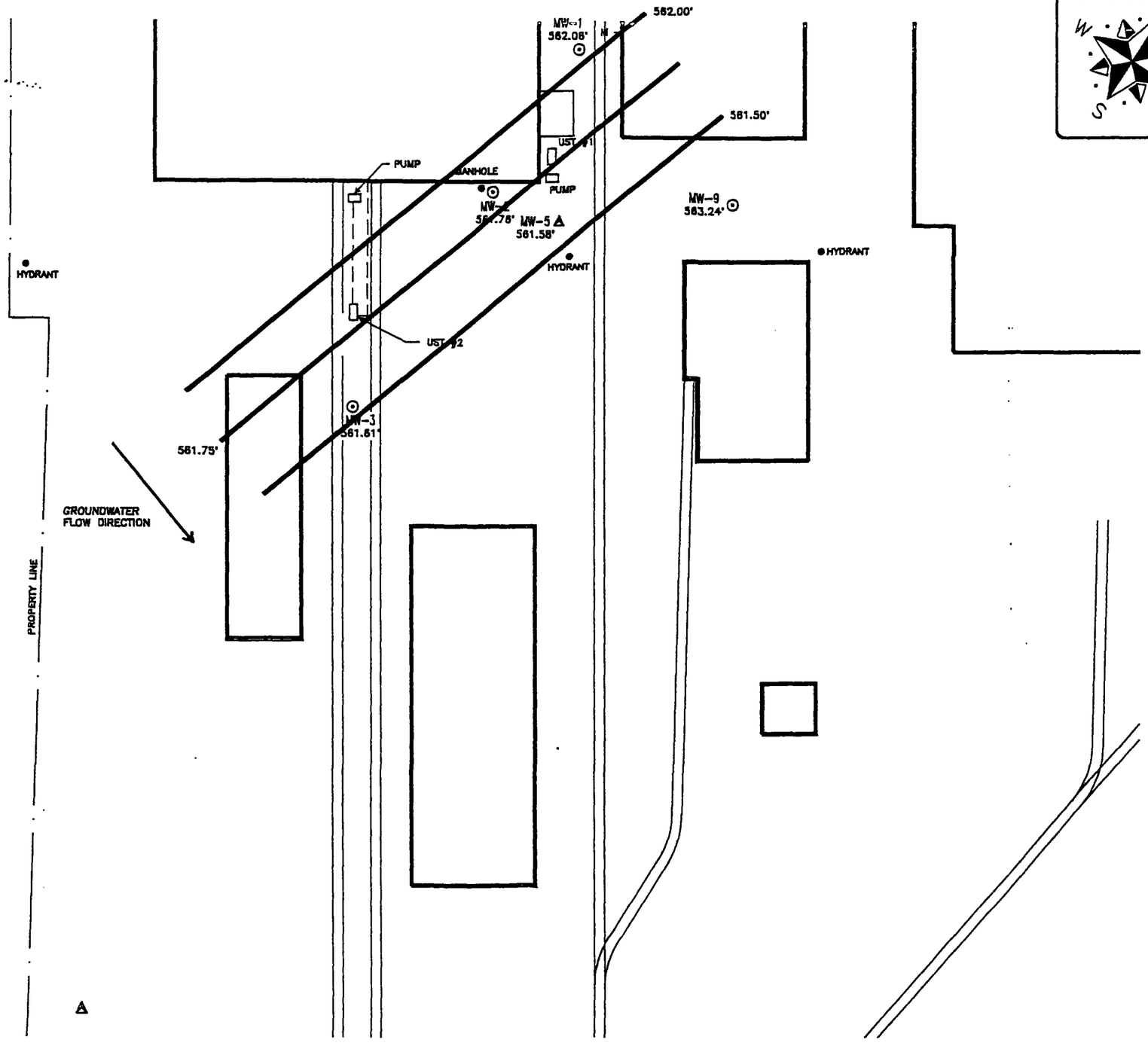
GROUND-WATER GRADIENT DATA COLLECTED ON 6/30/92

△ EXISTING MONITORING WELL

⊙MW- DAHL MONITORING WELL

NOTE:
MW-3, MW-5 AND MW-9 WERE USED TO CALCULATE HYDRAULIC CONDUCTIVITY.

SCALE:
0 1" 0 25' 50'



2627 Hickory Grove Road
Davenport, IA 52804
Phone (319)388-0838
FAX (319)388-9410

DAHL & ASSOCIATES, INC.
Environmental Consultants, Contractors & Engineers

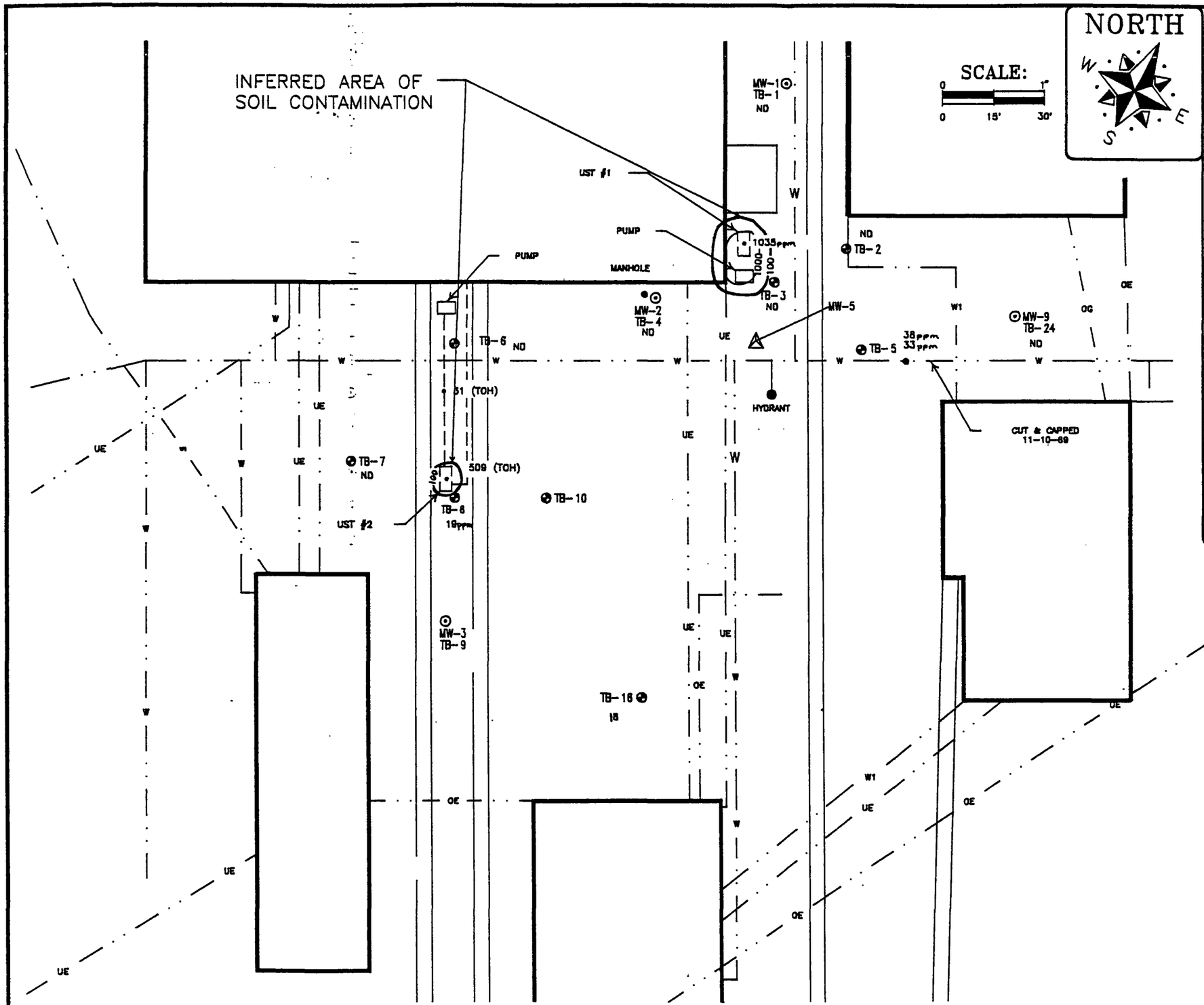
DAHL STD NO: QEIA1097-B-00-A

GROUNDWATER CONTOUR MAP
PACIFIC ACTIVITIES LIMITED
DAVENPORT . IOWA

PLOT SCALE 1" =50'
AutoCAD FILE NAME 1097-07A
PLOT DATE 9-15-92

DATE DRAWN	9/15/92
DRAWN BY	Don Mc.
APPROVED BY	
DRAWING NUMBER	B- 07 -A
PROJECT NUMBER	QEIA1097
FIGURE NUMBER	

III(H) - Soil Contamination Plume



EXPLANATION

NOTE :
This drawing (including property lines, structures, and locations of buried utilities) is not exact. For precise locations, consult a registered land surveyor and appropriate utility companies.

TANK#	SIZE	CONTENTS
1	300 Gal	GASOLINE
2	560 Gal	GASOLINE

—OE—	OVERHEAD ELECTRIC
—UE—	UNDERGROUND ELECTRIC
—OG—	OVERHEAD PROCESS GAS
—W1—	DOMESTIC WATER
—W—	CITY WATER (DISCONNECTED)
—X—	TRENCH w/ MISCELL.
△	EXISTING MONITORING WELL
⊕ TB-	DAHL TEST BORING
⊙ MW-	DAHL MONITORING WELL

NOTE:
VALUES REPRESENT TOTAL HYDROCARBONS AS GASOLINE IN ppm.

ppm	PARTS PER MILLION
ND	NONE DETECTED
•	UST REMOVAL SAMPLE

NOTE:
MW-3, MW-5 AND MW-9 WERE USED TO CALCULATE HYDRAULIC CONDUCTIVITY.

DAHL & ASSOCIATES, INC.
Environmental Consultants, Contractors & Engineers
2627 Hickory Grove Road
Davenport, IA 52804
Phone (319)388-0888
FAX (319)388-9410

DAHL STD NO: QEIA1097-B-00-A

SOIL CONTAMINATION PLUME MAP
PACIFIC ACTIVITIES LIMITED
DAVENPORT, IOWA

PLOT SCALE 1" = 30'
PLOT DATE 10-7-93
AutoCAD FILE NAME 1097-05B

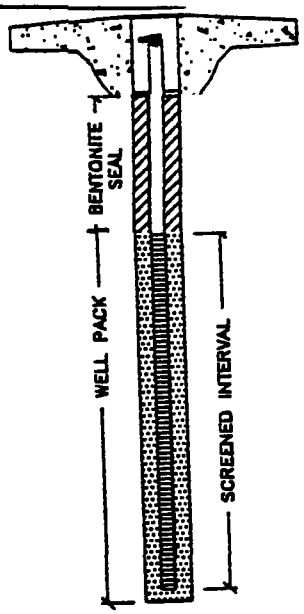
DATE DRAWN	5/27/92
DRAWN BY	Don Mc.
APPROVED BY	
DRAWING NUMBER	B- 05 -B
PROJECT NUMBER	QEIA1097
FIGURE NUMBER	

IV(B) - Monitoring Well Construction Diagrams

SOIL BORING LOG & MONITORING WELL CONSTRUCTION DIAGRAM

DAHL & ASSOCIATES, INC.
Environmental Consultants, Contractors & Engineers

Boring/Well #: TB-24/ MW-9	**Project No. & Name:** QEIA1097 PAL/DAVENPORT	**Address:** 626 SCHMIDT ROAD DAVENPORT, IOWA
Boring Depth (Feet) x Diameter (inches) 8.5' X 8.625"		**Drilling Method** HS
Well Contractor Reg. # CD920005501		**Logged by** D. JOHNSON
Date & Time Start 7/20/92 11:00	**Date & Time End** 7/20/92 12:30	**Ground Surface Elevation (ASL)** 568.18'
		Registration # 9017105
		LUST # 8LTB98



Depth In Feet	Blow Count If Applicable	Sample No.	Sample Type*	PID/FID Reading	Rock Formations, Soil, Color and Classifications, Observations (moisture etc.)
-0					0-2'-Concrete.
-2	5,2,2,2	1	SS	.5	2-3'-Black slag. 3-4'-Black clay w/coal, some gray clay. (FILL)
-4	1,5,15/3	2	SS	.5	4-5'-Black slag. 5-6'-Gray clay to yellowish/reddish black slag. (FILL)
-6		3	SS		6-8'-Obstruction, did not sample.
-8	5,7/3,x,x	4	SS	.5	8-10'-Gray clay, limestone @ 8.5'. Lab sample collected. (CL EOB @ 8.5'
-10					
-12					
-14					
-16					
-18					

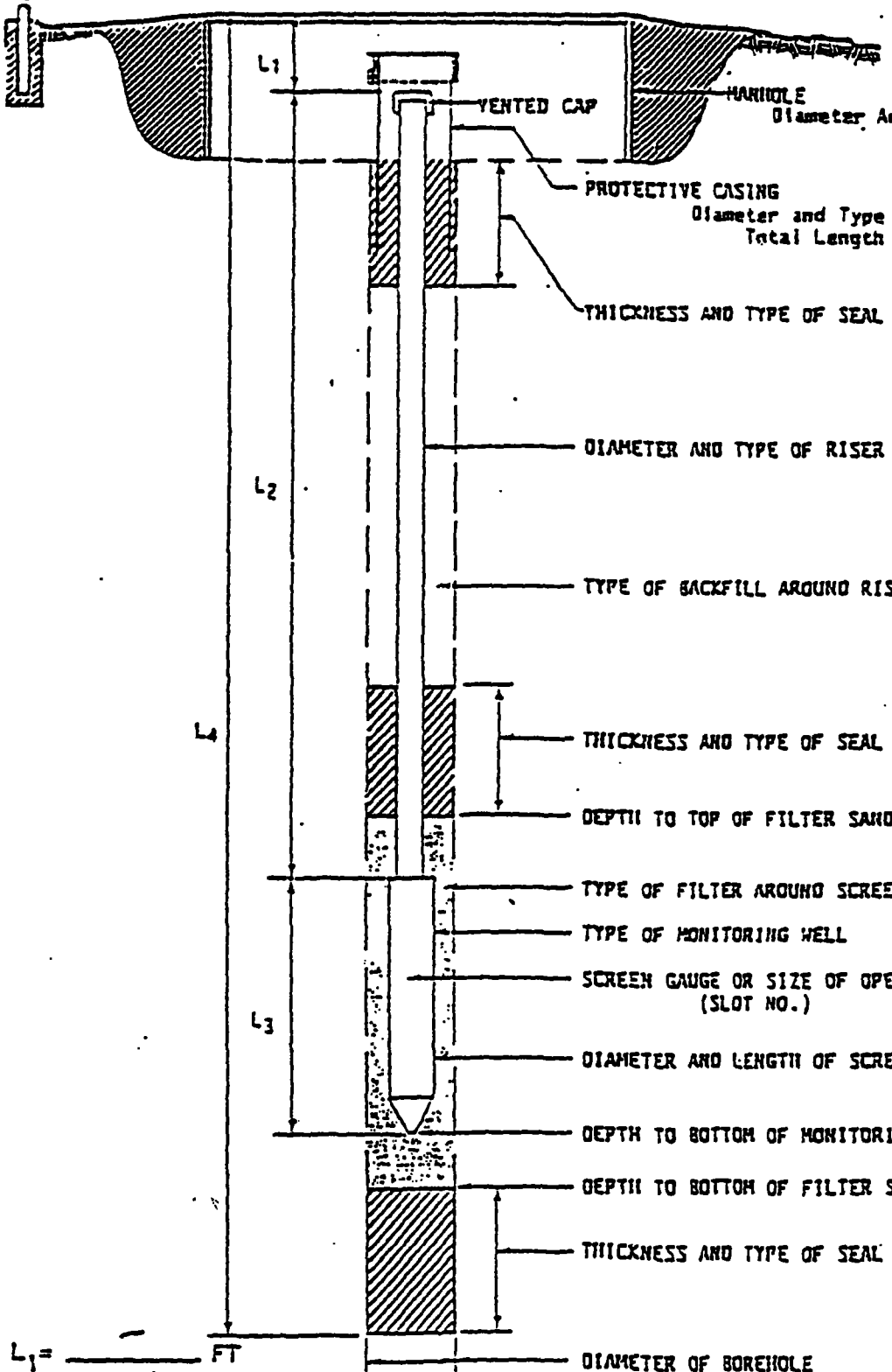
OBSERVATIONS	**DATE:** 7/20/92	7/31/92		
WATER LEVELS	**LEVEL:** 560.18'	563.24'		
Static Water Level Symbol ▼	**TIME:** 12:30			

* SS (split spoon) * HS (hollow stem auger)

DNR FORM 542-1392

JOB NO. [illegible] MONITORING WELL NO. [illegible] MW-5

MARKER HEIGHT _____ GROUND SURFACE ELEVATION _____ TOP OF RISER ELEVATION (With Cap Removed) _____



Diameter And Type _____
Depth _____

Diameter and Type _____
Total Length _____

2' Cement Grout

2" ID PVC

1' Bentonite

3'

Silica Sand

2" Ground H2O Quality

.010

2" ID 5'

9'

9'

Plain Clay

L_1 = — FT

L_2 = 4 FT

L_3 = 5' FT

L_4 = 9' FT

MONITORING WELL WATER LEVEL MEASUREMENTS

DATE	TIME	WATER LEVEL (1)	OBSERVATIONS
1-14-91	10:35	½-2" below riser top	

(1) DEPTH BELOW TOP OF RISER PIPE

INSTALLATION COMPLETED:
Date 1-10-90 Time _____

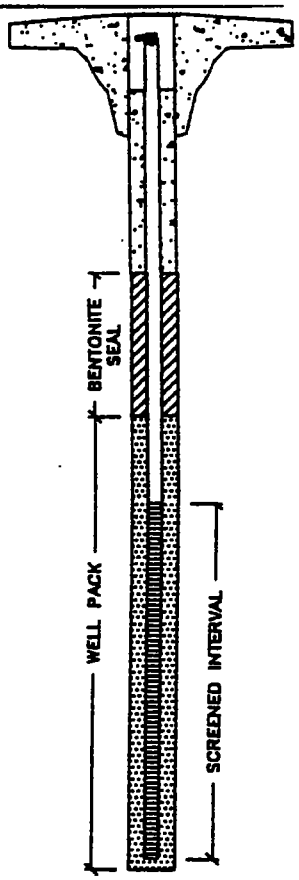
Twin City Casing Corporation

SOIL BORING LOG & MONITORING WELL CONSTRUCTION DIAGRAM

DAHL & ASSOCIATES, INC.
Environmental Consultants, Contractors & Engineers

Boring/Well #: TB-9; MW-3	**Project No. & Name:** QEIA1097 PAL/DAVENPORT	**Address:** 626 SCHMIDT ROAD DAVENPORT, IOWA
Boring Depth (Feet) x Diameter (Inches) 12' X 8.625"		**Drilling Method** HS
Well Contractor Reg. # CD920005501		**Logged by** A. BARRIONUEVO

Date & Time Start 5/26/92 2:15	**Date & Time End** 5/26/92 3:30	**Ground Surface Elevation (ASL)** 567.51'	**Registration #** 9017105
			LUST # 8LTB98

Depth In Feet	Well Construction Details	Blow Count If Applicable	Sample No.	Sample Type*	PID/FID Reading	Rock Formations, Soil, Color and Classifications, Observations (moisture etc.)
-0						0-2'-Gravel, fill.
-2		2,4,6,7	1	SS	8	2-4'-Black fill, slag w/clay, moist, no odor. (FILL)
-4		3,3,4,5	2	SS		4-6'-No recovery.
-6		4,4,5,20	3	SS	66	6-8'-Blue/gray clay coated w/product sheen, strong odor, very moist. Lab sample collected. (CL)
-8		5,7,4,3	4	SS	8	8-10'-Gray clay, water @ 8', strong odor. (CL)
-10		3,3,6,18	5	SS	16	10-11'-Same as above. (CL) 11-12'-Light gray silt, moist, no odor. (ML
-12						EOB @ 12'. MW-3 set @ 12'.
-14						
-16						
-18						

OBSERVATIONS	**DATE:** 5/26/92	6/30/92	7/31/92	
WATER LEVELS	**LEVEL:** 559.51'	561.61'	564.44'	
Static Water Level Symbol ▼	**TIME:** 3:30			

* SS (split spoon) * HS (hollow stem auger)

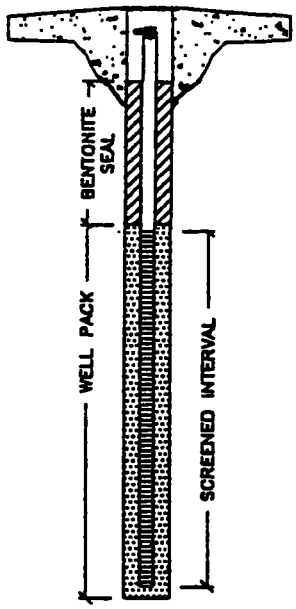
DNR FORM 542-1392

SOIL BORING LOG & MONITORING WELL CONSTRUCTION DIAGRAM

DAHL & ASSOCIATES, INC.
Environmental Consultants, Contractors & Engineers

Boring/Well #: TB-4; MW-2	**Project No. & Name:** QEIA1097 PAL/DAVENPORT	**Address:** 626 SCHMIDT ROAD DAVENPORT, IOWA
Boring Depth (Feet) x Diameter (Inches) 10' X 8.625"		**Drilling Method** HS
Well Contractor Reg. # CD920005501		**Logged by** D. JOHNSON

Date & Time Start 5/22/92 10:30	**Date & Time End** 5/22/92 12:00	**Ground Surface Elevation (ASL)** 567.89'	**Registration #** 9017105
			LUST # 8LTB98

Depth In Feet	Well Construction Details	Blow Count If Applicable	Sample No.	Sample Type*	PID/FID Reading	Rock Formations, Soil, Color and Classifications, Observations (moisture etc.)
-0						
-2		5,2,2,1	1	SS	8 7	2-3'-Black slag. (FILL) 3-4'-Black clay.
-4		2,3,3,9	2	SS	10	4-6'-Gray clay. (CL)
-6		4,6,6,20	3	SS	7	6-8'-Gray clay. Lab sample collected. (CL)
-8		x	4	SS	9	8-10'-Rock, limestone. Drilled to 8.5'
-10						
-12						
-14						
-16						
-18						

OBSERVATIONS	**DATE:** 5/22/92	6/30/92	7/31/92	
WATER LEVELS	**LEVEL:** 560.89'	561.76'	562.15	
Static Water Level Symbol ▼	**TIME:** 12:05			

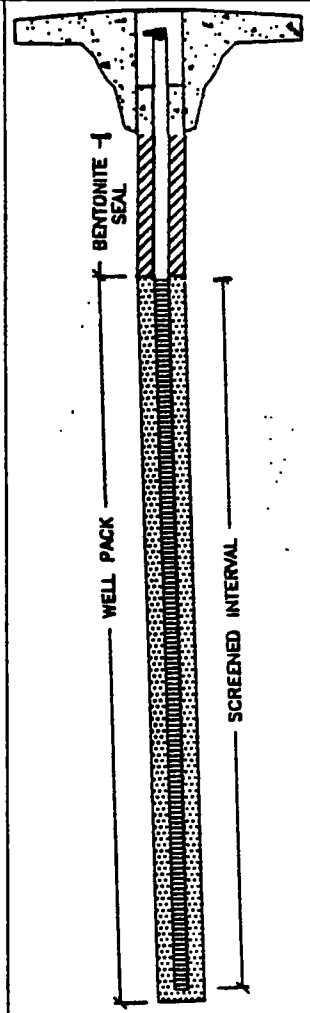
* SS (split spoon) * HS (hollow stem auger)

DNR FORM 542-1392

SOIL BORING LOG & MONITORING WELL CONSTRUCTION DIAGRAM

DAHL & ASSOCIATES, INC.
Environmental Consultants, Contractors & Engineers

Boring/Well #: TB-1; MW-1	**Project No. & Name:** QEIA1097 PAL/DAVENPORT	**Address:** 626 SCHMIDT ROAD DAVENPORT, IOWA
Boring Depth (Feet) x Diameter (Inches) 16' X 8.625		**Drilling Method** HS
Well Contractor Reg. # CD920005501		**Logged by** D. JOHNSON
Date & Time Start 5/21/92 10:30	**Date & Time End** 5/21/92 12:30	**Ground Surface Elevation (ASL)** 568.36'
		Registration # 9017105
		LUST # 8LTB98



Depth In Feet	Blow Count If Applicable	Sample No.	Sample Type*	PID/FID Reading	Rock Formations, Soil, Color and Classifications, Observations (moisture etc.)
-0					
-2	2,2,1,1	1	SS	2	2-3'-Black slag materials. (FILL) 3-4'-Black clay, pastic. (CL)
-4	2,3,4,5	2	SS	1	4-6'-Black clay, plastic. (CL)
-6	3,4,4,3	3	SS		6-8'-No recovery.
-8	1,2,1,2	4	SS	2	8-9'-Fe gray plastic clay. (CL) 9-10'-Green Fe color, silty clay, plastic.
-10	4,6,9,20	5	SS	2	10-12'-Green silty sandy clay, crumbly. Lab sample collected. (CL)
-12	18,31,47, 32	6	SS		12-13'-White limestone fragements. 13-13.5'-Grn silty sandy clay, crumbly. 13.5-14'-Grn shaley clay, stiff. (CL)
-14	27,38,45, 60	7	SS	1	14-15'-Light green silty sandy clay. 15-16'-Olive drab green silty sandy clay. (CL)
-16					
-18					

OBSERVATIONS	**DATE:** 5/21/92	6/30/92	7/31/92	
WATER LEVELS	**LEVEL:** 557.36'	562.06'	564.15	
Static Water Level Symbol ▼	**TIME:** 12:30			

* SS (split spoon) * HS (hollow stem auger)

DNR FORM 542-1392

SOIL BORING LOG & MONITORING WELL CONSTRUCTION DIAGRAM

DAHL & ASSOCIATES, INC.
Environmental Consultants, Contractors & Engineers

Boring/Well #: TB-24/ MW-9	**Project No. & Name:** QEIA1097 PAL/DAVENPORT	**Address:** 626 SCHMIDT ROAD DAVENPORT, IOWA
Boring Depth (Feet) x Diameter (Inches) 8.5' X 8.625"		**Drilling Method** HS
Well Contractor Reg. # CD920005501		**Logged by** D. JOHNSON

Date & Time Start 7/20/92 11:00	**Date & Time End** 7/20/92 12:30	**Ground Surface Elevation (ASL)** 568.18'	**Registration #** 9017105
			LUST # 8LTB98

Depth In Feet	Well Construction Details	Blow Count If Applicable	Sample No.	Sample Type*	PID/FID Reading	Rock Formations, Soil, Color and Classifications, Observations (moisture etc.)
-0						0-2'-Concrete.
-2		5,2,2,2	1	SS	.5	2-3'-Black slag. 3-4'-Black clay w/coal, some gray clay. (FILL)
-4		1,5,15/3	2	SS	.5	4-5'-Black slag. 5-6'-Gray clay to yellowish/reddish black slag. (FILL)
-6			3	SS		6-8'-Obstruction, did not sample.
-8		5,7/3,x,x	4	SS	.5	8-10'-Gray clay, limestone @ 8.5'. Lab sample collected. (CL EOB @ 8.5'
-10						
-12						
-14						
-16						
-18						

OBSERVATIONS	**DATE:** 7/20/92	7/31/92		
WATER LEVELS	**LEVEL:** 560.18'	563.24'		
Static Water Level Symbol ▼	**TIME:** 12:30			

* SS (split spoon) * HS (hollow stem auger)